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By Dr. Ernest Nora

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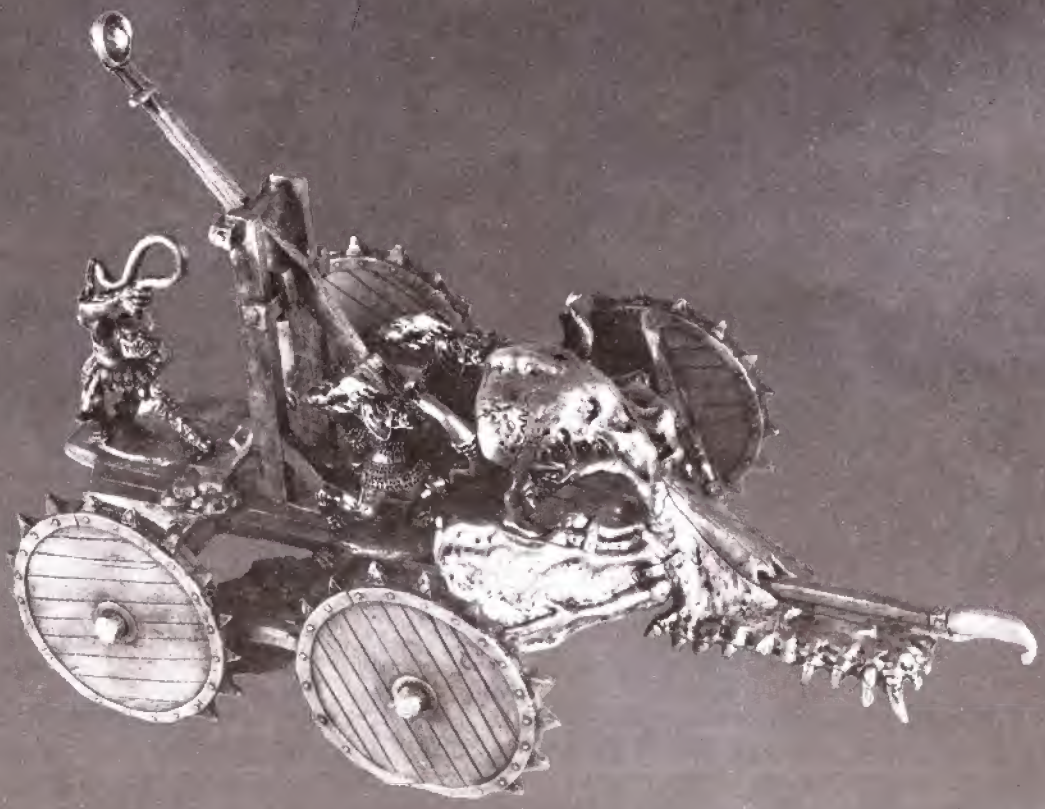

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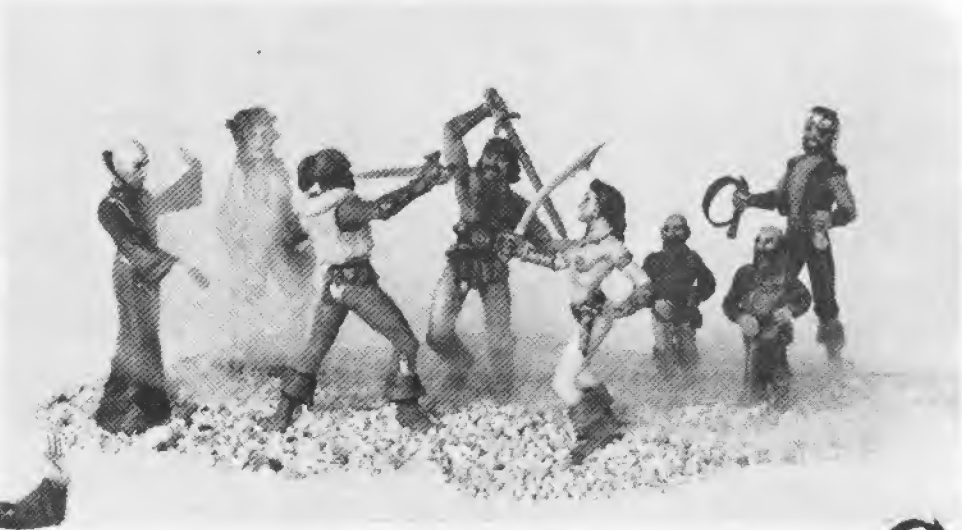

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Dr. Ernest Nora's figure of "War," a scratchbuilt 120mm presentation, which was a medal winner at the 1981 Military Miniature Society of Illinois competitions.

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Editorial

When we ran the item on the KILLER game in the last issue of FM, we had no idea that we would receive so swift a response, and in so unexpected a way. Talk about a sophomoric caper! A California State University sophomore on an assassination game outing at night(!!!) is hailed by a cop who, of course, was not in on the game. And what does this bright lad do? He points a plastic replica of an automatic rifle at the lawman! Now you know how real these things can look at a distance ever in daylight. Naturally, our sophomore takes a very real bullet in the chest.

Mind you, dear readers, this is not yet another plot for a TV show. This is the real McCoy, sent to us in the form of a clipping from the *San Francisco Chronicle*. The opening paragraph read:

> "In the aftermath of a weekend shooting of a California State University sophomore by a campus policeman, a college official pleaded with students to stop playing a bizzarre game sweeping the campuses."

A week later, network TV picked up on the story and it seems that the incident at CSU, although the most serious, was not the only one. This raises a serious question about the entire violence oriented business of games, movies and television.

We live in a violence oriented society and it is the media who must take the rap for it! Billy the Kid, John Wesley Hardin and John Dillinger were killers who have been cast into the roles of folk heroes, By whom? And the men who brought these men to book are either virtually unknown or, as in the case of Pat Garrett (he did in the Kid), they have even been cast in the role of the villain. Now who made things come out that way? The media, that's who. And it began way back when, in the days of Ned Buntline, who turned a neat buck at it. And in those days you even had to make an effort to read about it, it wasn't thrown at you from the tube.

Is there a difference between Matt Dillon facing down a villain and Starsky and Hutch waving their artillery around while they're not busy chasing the same blonde? Is there a difference between Sir Ivanhoe wielding his battleaxe and Coogan exhibiting Magnum Force? Is there a difference between DUNGEONS AND DRAGONS and KILLER? I think so! A guru with 700 credits in psychology might want to give me a dissertation to the contrary, but he won't sell me a nickle's worth of his jabberwocky.

It is often said that man has an inherent spirit of aggressiveness and a thirst for power, by whichever means these may be expressed. This thirst for power may reach no further than into his personal relationships. If it can't even find an occasional expression there, it will retreat into his fantasies. *Oh dear*. Here we are! Fantasies! Aggressiveness! Power! Here we certainly have the ingredients for violence.

But violence finds expression in many ways. Even in our all-American sports; this may range from Billy Martin kicking sand onto the umpires shoes to professional goonsquads using their hockey sticks on each other instead of the puck.

Games are contests for supremacy. Where there are winners, there will be losers. Contests also beget violence. But there are degrees of violence, both in intensity and nature. It requires a giant leap of imagination to translate a wicked witch or a sorcerer into real life. It is just as far fetched to strap on a six-gun and swagger down Broadway in quest of an argument. The end can be swift and igonominious. It is even more far-fetched to implement the fantasy of turning a Napoleonic battalion or a Panzer division loose on Des Moines, Iowa.

So what about games like KILLER, KAOS and DARTWARS? Did the adolescent minds of John Lennon's assassin and the dolt who was less successful with the president (only because the latter was better protected) ever become exposed to these games. Or did the would-be presidential assassin fail because he lacked the training a game like this could have afforded him?

Will games such as these infect sick minds, which then will walk around like loaded guns, waiting to be triggered by some even sicker fantasy. We have already suffered at the hands of semi-intellectual nitwits who have offered us violence under the delusion that their methods would bring a gift of who knows what to mankind and civilization.

Stick to pushing armies around, fight Richthofen's War, let the Empire Strike Back, wield magic swords, cast spells, foil the dragon, but—homo sapiens—beware of the assassin! There is nothing macho about him! He strikes from behind, at the unwary! He may be totally ammoral, he may be insane, but—he is never a hero!

—RICHARD RIEHN

SPACE AGE MODELING ON A BUDGET

By STEPHEN PARADY

So, you've been bitten by the science fiction bug? You dream of building the biggest space cruiser ever to rival Darth Vader's fleet, or a more modest starship to take your fantasies to the far ends of the galaxy, or maybe just a backyard jaunt to the rings of Saturn. So you run down to your local hobby shop and look at the Plastruct catalog and Tamiya tank kits. One glance at the prices is as devastating as a laser blast between the eyes.

Well, Space Cadets, take heed. Your own space program needn't suffer the same budget problems NASA always seems beset with. Though purists out there may scream "heresy," there are low cost alternatives to traditional modeling techniques.

DESIGNING A SPACE SHIP

There are a few rules I like to follow to make a believable looking spaceship. Whether you follow them or not is a matter of personal taste, but there is one thing I feel will help the spaceship designer most. RESEARCH! That doesn't mean you need an industrial engineering degree, but you should look at a lot of pictures. *Starlog's Photo Guidebook to Spaceships* is a good place to start. So are art books with pictures by Chris Foss, Ralph McQuarry, Ron Cobb, Chesley Bonestell and Robert McCall. Look through back issues of *Aviation Week and Space Technology* which are loaded with photos of modern aircraft, missiles and space hardware. Search through catalogs of industrial machinery, encyclopedias and the marvelous Jane's catalogs of Fighting Ships and Aircraft. The more you learn about how machinery looks and how form follows function the more realistic your spacecraft designs will be.

Nearly as important is to learn the basic principles of space travel. Getting from planet to planet requires tremendous changes in velocity. This is known in spaceflight jargon as "Delta V." This means rocket powered vehicles need to carry lots of reaction mass, which means big fuel tanks. Very few fantasy ships I have seen seem to have room for any fuel at all. Ships designed to enter

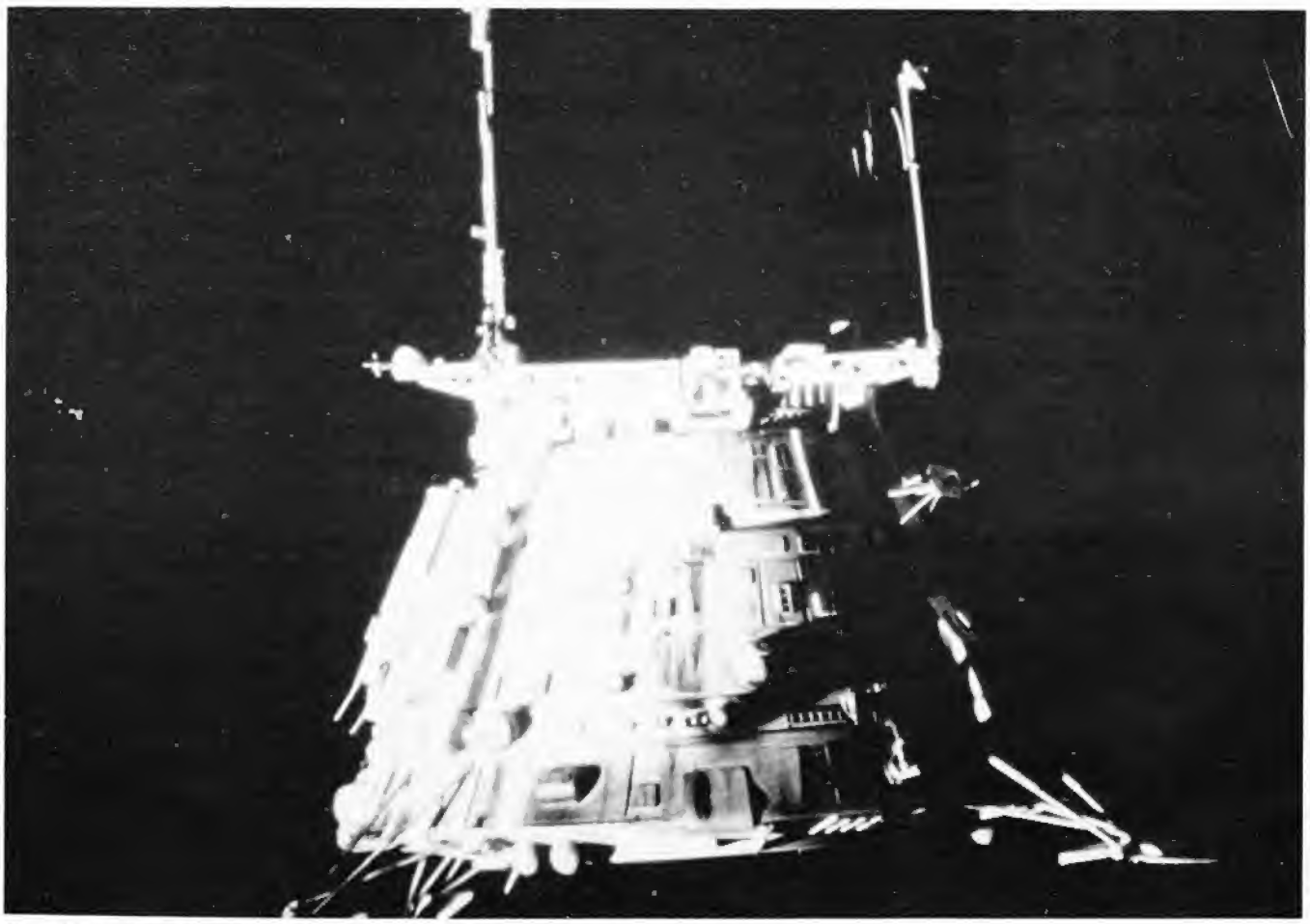


PHOTO: BILL RUDOW

The Genmet ship, from the award-winning film, *Astroids*.

planetary atmospheres should be sleek and aerodynamic looking and have some kind of heat shield to protect the ship during re-entry. Such vehicles should be free of antennas and appendages which would soon break off and burn up on contact with a dense atmosphere. Interplanetary craft need not have smooth, sleek skins to operate in the vacuum of space and would be built as lightweight as possible to conserve precious fuel. If your crew is going to spend much time in space, your ship's living quarters will need shielding from cosmic radiation.

Sketch your designs on graph paper as carefully as possible, keeping a constant scale to any objects you may use in construction. You don't have to be a great artist or draftsman to do this, because no one has to see your plans but yourself. The more you have planned out in advance, the easier it is to build a convincing looking model.

MODELING SUPPLIES—CHEAPER THAN YOU THINK

Since crafts designed to fly solely in the vacuum of space don't need sleek aerodynamics, they can be virtually any shape. Therefore, virtually any object can become a space ship! Look around your attic, basement and kitchen. You will find many wood, metal and plastic objects to incorporate into your designs. Plastic soda pop and soap bottles, disposable plastic cups, plates, toothpicks, all can be used with a little imagination and modification. Visit your local Five and Ten, often they have kitchen and hardware supplies on sale at rock-bottom prices.

If there's one in your area, visit a plastics supply house. (Look in the Yellow Pages.) Often you can find sheet styrene and plexiglass at prices far below those in hobby stores. Ask to look through their trash. I have found vast quantities of scrap this way, all I could cart away for free.

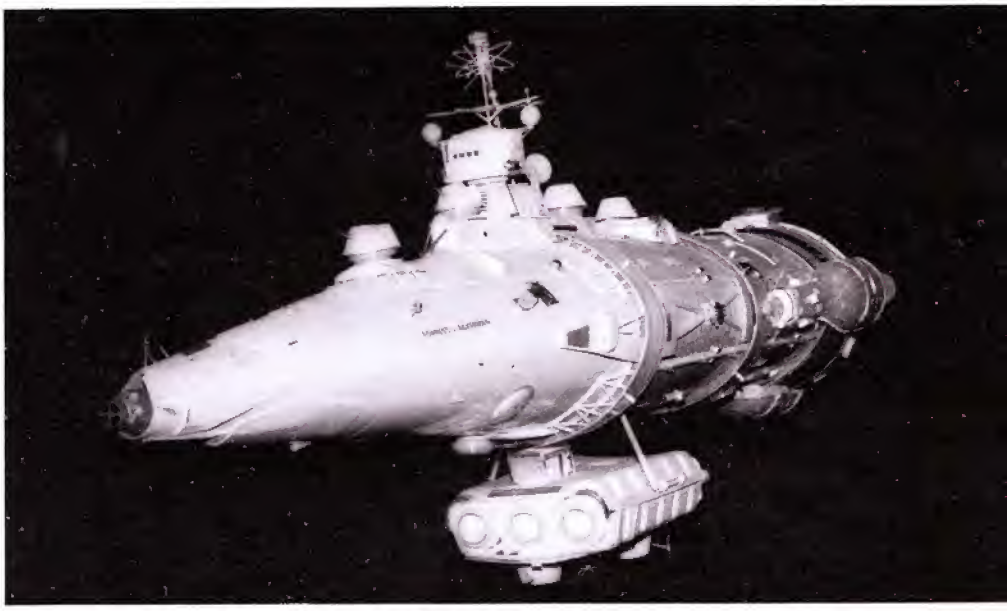
Make a habit of attending yard sales and church rummage sales. Soon you will develop an eye for the odd shapes of knick-knacks and old toys perfect for your hobby. One note: Stay away from soft polyethelene and polypropolene plastics as paint and cement won't stick to these materials.

If you're not too proud, visit the town dump. It's really amazing to see what unimaginative people throw away! Clip the components out of old radio and television chassis, as these make great surface details.

CONSTRUCTION HINTS

It helps to plan your construction thoroughly. Many of the models I build are quite large and are meant to be photographed for slide shows and amateur film projects. Often these

The Republic, a Coke bottle-coffee filter mail ship from *Starship Express*, a slide show.



The Forest J. Ackerman, a five-foot long early and ambitious effort by the author.

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models have working lights, fiber optics, movable doors, landing gear and gun turrets. Believe me, it's much easier to work out the design of these details first rather than tear your model half apart to fit in a lighting system.

Since you will be using many types of materials in your model you will need various types of glues. Styrene model cement works on a limited number of plastics, so you will also need epoxy, "super glue," Elmer's and a good all purpose household cement such as Duco or Weld-It. I prefer Weld-It because it dries quickly, sticks to almost anything and is fairly strong for a solvent based cement. Epoxies are much stronger cements and should be used to hold major assemblies together and any load bearing joints. Epoxies suffer from a long setting time (five minutes to half an hour) and are messy to use, but are worth learning to use properly. Elmer's or white glue works only on porous materials such as wood, cardboard and paper.

You may think you need a lot of tools to work with all these varied materials, but I get by with just a few. You can start out with just a coping saw, Exacto knife, ruler and pencil. You can buy all that for about five dollars. Other tools you will want eventually are needle nosed pliers, screwdrivers, drill and drill bits, sand paper and files.

If you like to build large models over a foot in length, one versatile material you may want to use is foam core board. This is a lightweight styrofoam sheet covered on both sides with a heavy high quality paper. It is available at art supply stores for about four dollars for a quarter inch by two foot by three foot sheet. It is easy to cut with an Exacto knife, can be cemented together with white glue and is very strong and stiff for its weight. Details and paneling can attached to its surface with most glues. Most paints take to it quite well, but avoid water based paints which can wrinkle the surface.

If you are using commonplace items for your models disguise them as thoroughly as possible. Cut them into pieces, turn them upside down, cover them with paneling and surface detail. Attach one item to another so that they blend together and form a different shape. Nothing can be more embarrassing than to have a perfect stranger take a quick glance at your model and tell you it's made of plastic cups and flower pots.

The same goes for surface detailing. Too often I see models where the surfaces are randomly covered with parts from old model kits, especially from tanks and X-wing fighters. Now it's O.K. to use model parts, I do it all the time. Just be creative about it. Look at photos of battleships, aircraft, oil refineries and other large construc-

Zac Ornstien's mining ship from *Astroids*.

Dragonfire, a conversion from an F-104.
Over: The Boris Strugatski, a Russian exploration ship. Inset: the Shark Interceptor.

tions. All that surface detail has some kind of function. Now go back and cut those model parts into less recognizable shapes and attach them to your model in patterns that look to you like sensor arrays, pressurization tanks, engineering access panels, retro rockets and so on. Repeating patterns of surface detail can also help give your model that "realistic" look.

You don't need an expensive airbrush to paint your models. I have one but I hardly ever use it. Spray paints work quite well for most purposes. I like to give my models a primer coat of flat white, gray primer or aluminum. This covers the various colors of the materials used in construction and gives a nice neutral color to apply the final paint coats to. It's amazing how the hodgepodge of shapes and colors blend into a unified form when painted. After the primer coat has thoroughly dried, add the final color. Two or three coats should suffice. Be sure to read the directions on the can before doing any spray painting! I almost always buy the large cans of spray paint from a department or paint store as they are far more economical than the small cans available in hobby stores.

After the paints dry thoroughly, add detail with a fine brush and enamel model paints. Extra fine details and additional paneling can often be added using a sharp pencil and ruler. Weathering and dirtying can then be added. One technique is to brush on heavily thinned enamel paint, wiping off excess with a thinner moistened tissue. Another is to lightly spray flat black paint through a template cut into a piece of cardboard. Experiment with different techniques until you get the effects you want.

Rub off lettering such as Letraset are ideal for adding names and numbers to your creations. Letraset is available in art and office supply stores and costs about four dollars per sheet. One sheet can provide enough letters for dozens of models.

Finally, give your ship a coat of clear gloss or flat spray to protect it from handling and scratching.

The most important secret to successful model building is this: Use liberal amounts of imagination and ingenuity. Don't be afraid to experiment with new techniques, because that's half the fun.

Stephen Parady is a film maker and model builder from Waltham, Massachusetts. He displays space ship models at science fiction conventions and educational space exhibits. Some of his models have been used in slide shows and films produced for the L-5 Society. His film "Asteroid" recently won third prize in the 1981 CINEMAGIC-SVA Short Film Search. ■

Beauty in the Beast

By WILLIAM G. SWENSON

Calibos is turned into a monster and shown out of the city because he dared to offend the gods in *Clash of the Titans.*

The mythologies of many different peoples abound with numerous, powerful, unusual creatures whose forms and features easily terrify mere mortals. In the more developed, later mythologies of Western Man, the stories behind these beasts and their subsequent roles are complex, informative, and fascinating.

The findings of archeologists, paleontologists, psychologists, historians, and mythologists show that from the very beginning of man's experiences, there was a stronger relationship between man and animal than simply that of the hunter and the hunted. In a period that began about thirty-five thousand years ago and, as some would suggest, has not yet ended, man has recorded his diverse experiences with the animal world, and in these expressions we can see the mental, moral, and spiritual growth of the human kind.

At first, paleolithic man survived as he learned to hunt the smaller animals and protect himself against the larger ones. Terrified by the awesome size and strength of some and sustained by the flesh, skins, and bones of others, early groups of men felt the need to identify with specific animals as well as plant life to gain their particular strengths and life-sustaining qualities. These *flora* and *fauna* served as totems for the small tribes who ran the gamut from protecting their respective totem to killing it in great abundance. Later paleolithic man, either to show his awe and wonder of these animals, or to control them through the use of homeopathic magic (e.g. drawing a wounded animal on the cave wall would guide the spearheads during the next hunt, or picturing a pregnant animal would insure a large herd to hunt the next year), left us the fascinating cave drawings and small statues of animals. At this time, from the Aurignacian Period on (35,000 B.C. to 27,000 B.C.) man began to see other forces at work in the presence of these animals. Rooms in caves were set aside for the special placement of animal skulls and bones indicating that man was now looking beyond himself and the forces of nature to understand his world as well as to find ways to control those aspects of life that seemed to be far beyond his limited powers.

These new developments involving animal-based rituals during the Upper Paleolithic Period (25,000 B.C. to 11,000 B.C.) led to the long, slow growth of what we call mythology. Man's immediate needs led to the development of rituals which, acted out in the cave or explained by the leaders of magic (shamans, priests, witch doctors, etc.), became man's reality. By seeking to develop rituals or stylized behavior that explained areas and mysteries such as the hunt, birth, death, and social roles and responsibilities, man submerged nagging questions, doubts, and fears beneath a complex development of rituals. By seeking an understanding of natural phenomena through rituals, man carried out the first major purpose of mythology. Then, as man grew both in his knowledge of the world and in his ability to explain the unknown through personification or abstraction, he developed a series of oral narratives to support or explain these rituals. In time, understanding and familiarity brought an end to many rituals, but the stories supporting them remained, becoming more elaborate, more varied, and more valuable to each new generation as the means to enlightenment.

The growing sophistication of man is seen in the development of these stories that supported ritual. The unexplained but visible forces of nature are seen in human terms. From earlier days man had developed the idea that the same force that worked within him to move him also was found in the plants and animals around him (animism). Thus, the forces of nature could be seen as being male and female, living or dying, happy or sad. In this way the sun and all-embracing sky became male (protective) and the moon and earth became female (sources of life, constantly changing, nourishing). From here, it is a short step to identifying the forces of nature and the qualities of animals with human beings. This, along with the ever-increasing cults of ancestor worship and the growing fear of the powers of the dead, may have given rise to man's belief in the all-powerful gods who ruled

The Dragon flying from his lair in the film, *Dragonslayer.*

Right: A mystic knight in *Excalibur*, **the most recent Arthurian film.**

over aspects of nature and could now be associated with the dearly departed former leaders and mainstays of the growing group.

From earliest times, many of these respected tribal leaders and oracles of wisdom were women who embraced and displayed those special powers inherent in women. They brought forth new life like the earth. They physically changed their shape and went through cycles like the moon. All around paleolithic man certain animals became associated with women. These included the cow, the snake, and the lion, which were identified with birth, strength, and the power of rebirth or resurrection. Early statues of females called "Venuses," about six to eight inches tall with greatly exaggerated breasts and buttocks celebrating fertility, have been found in many habitations of the Aurignacian Period.

However, as man entered the neolithic or New Stone Age, the greatest growth of settled societies began to take place in the Near East where early agricultural civilizations developed along matriarchal lines (c. 11,000 B.C.-4,000 B.C.) and individual mythologies flourished, dominated by strong female deities representing birth, wisdom, and order. From many sites throughout the Near East small earthen figures representing a triad of two female goddesses and a male companion have been taken. These are interpreted to represent the two living goddesses of the upper world and the nether world along with their shared consort (note the Greek tale of Aphrodite, Persephone, and Adonis). The ruling female divinity of these agricultural societies comes down to us in the figures of Nidala (Sumer), Ninlil (Sumer), Ashtoreth (Canaan), Astarte (Canaan), Ishtar (Assyria-Babylon), Tiamat (Babylon), and Isis-Hathor (Egypt). From the beginning the goddess is associated particularly with the serpent (the cosmic serpent that rings the world appears in many different creation myths) and the cow. In later Greek mythology we see these influences in Hera, the "cow-eyed" spouse of Zeus; in Athene, the warrior goddess and protectress of Athens whose temples are often embellished with snakes; and in the all-knowing Oracle of Apollo, the Pythian One.

However, the rise and fall of these early Near Eastern cultures is marked by the growing incursions of nomadic, bellicose tribes from the North, tribes that were made up of hunters who worshiped male gods of hunting prowess and strength, whose weapons were the flashing thunderbolt, the power of the bull, and the fleetness of the eagle in flight. The matriarcal societies were in

A Griffin confronts a Centaur in *The Golden Voyage of Sinbad.*

Left: Perseus (Harry Hamlin) conquers the Medusa in *Clash of the Titans.*

conflict with the patriarchal and slowly, but surely, might became right. Through the processes of direct substitution, assimilation, adoption, and confrontation gods and goddesses comingled or fought, but the patriarchal systems dominated and new mythologies reflected the change from female to male dominance. In Greek mythology, which reflected the influences of earlier pre-Greek mythologies including the Sumerian, the Babylonian, and the Cretan, we can see the patriarchal-matriarchal struggle in the repeated struggles between the dominant hero and the defeated serpent. Thus, Zeus secures the stability of his throne by defeating the serpent Typhon (Tphyoeus); Apollo destroys the Python, and here the symbolic myth shows the serpent equated with death and drought, spawned from the mud of the Great Deluge and finally slain by the arrows (rays) of Apollo (the sun). In the richly developed stories of the House of Thebes, many see a historic myth depicting the invasion of the matriarchal city of Thebes in Boetia (named for the cow) by the patriarchal forces in the figure of Oedipus, who solves the riddle of the Sphinx (a creature with the body of a winged lion and the face and breast of a woman), causes its destruction, and then unwittingly marries his mother, which leads to her downfall. The Greek hero Bellerophon rides Pegasus the winged horse to destory the Chimaera, a fantastic creature with a fire-breathing lion's head, a goat's body, and a dragon's tail. Perseus, the epitome of the classic Greek hero, who is copied in form by most heroes of Western Literature, slays the Gorgon Medusa, a powerful force in Greek life whose haunting, staring eyes and formidable snake-covered head adorned buildings and Greek shields. The sons of Boreus (the North Wind) drive from the skies the dreaded Harpies—half-women, half-bird creatures—whose noisome breath befouled the food set before the hapless Phineas.

The presence of these female monsters and creatures attests to the power and undying influence of early matriarchal goddesses. The mythologies of Greece, Egypt, Sumer, and Canaan show the need for a male-dominated society to secure its hold upon ritual and supportive mythology by relegating women to a subordinate role. In most cases, this role is to thrust chaos and disorder upon the new order. In the patriarchal Hebrew story of creation, the subordinate Eve (resembling the earlier Greek Pandora) secures man's fall from immortality by offering Adam the apple proffered by the serpent. Once again, the earlier symbols are at work but for a different purpose.

In addition to the patriarchal-matriarchal rivalry as a cause for the development of beasts in mythological tales, other explanations have been offered and, given the nature of mythological thought and its foundations in the human psyche, one is safer weighing the merits of all explanations than championing any one particular hypothesis. Since totem animals were associated with paleolithic man, beasts have always been a part of recorded history in drawings, statues, rituals, and folklore. In addition, the explanation for different natural phenomena has been found in early man's personifying of volcanoes as fire-breathing serpents (e.g. the Centimani and Typhoeus) associated with many locales throughout Asia Minor and the Mediterranean. Others see the growth of mystical beasts as the fantasizing of reality. For example, when the early Greeks came into contact with sheepskin-clad farmers of Asia Minor or with the bareback, horse riding warriors of Anatolia,

Galen (Peter MacNichol), slays the Dragon, in *Dragonslayer.*

Beasts of Greek Mythology

Centaur—half-man, half horse; the children of Ixion, a king of the Lapiths who was chained to a revolving wheel in Tartarus by Zeus for making love to Hera; most famous Centaurs were Chiron, tutor to the children of the gods and Nessus, who fought with Hercules.

Cerberus—three-headed dog that guarded the entrance to Hades.

Chimaera—monster with a lion's head, a goats's body, and a dragon's tail; flames came from the beasts's mouth; slain by Bellerophon who flew Pegasus over the beast. (see Eyptian Amam)

Endeladus—giant spawned by Gaea the Earth-Mother who tried to avenge Typhoeus; was defeated by Zeus and chained beneath Mt. Etna.

Gorgons—three sisters—Medusa, Euryale, Stheno—the daughters of Phocys and his sister Ceto; Euryale and Stheno were immortal but Medusa was a beautiful mortal; after Poseidon loved Medusa, she broke her vow of secrecy and was turned into a monster like her sisters, noted for hair made of snakes, great staring eyes, lengthy tusks, golden scales, and a long serpentine tail; as Persus carried the severed head of Medusa back home, droplets of blood falling to the earth gave birth to poisonous snakes while droplets in the water gave birth to Pegasus.

Centimani—three monsters with fifty heads and one hundred hands born to Ouranos and Gaea; despised by Ouranos, they were imprisoned in the bowels of the earth.

Griffins—called "the hounds of Zeus," they were creatures with an eagle's wings and body, the ears of a horse, and the fins of a fish.

Harpies—half-women, half-bird creatures who befouled the food of Phineus, a blind king of Thrace punished by Zeus for being too successful as a prophet.

Hydra—a seven-headed serpent living in the marshes of Lerna devouring men and animals; when a head was cut off in a battle against Hercules, seven more grew on the stump; it was killed only when Hercules applied a burning torch to each stump. (see Egyptian Nau and Lotan)

Minotaur—half-man, half-bull, the product of Pasiphae, wife of the King of Crete, and a beautiful white bull given to Minos by Zeus; when Minos refused to sacrifice the beast and kept it for himself, Zeus placed Pasiphae under a spell and she fell in love with the bull; the product of the union, the Minotaur, was placed under the Palace of Knossos in the Labyrinth built by Daedalus, the master builder.

Python—a terrible serpent born from the mud of the Deluge and later slain by Apollo.

Satyr—half-man, half-goat; minor divinity of the woods associated with music and mayhem.

Sphinx—a creature having the body of a winged lion with a woman's face and breast; it beseiged cities, bringing plagues and issuing a riddle that had to be solved before anyone bringing aid could enter the hapless city; Oedipus solved the riddle and drove the Sphinx over a cliff.

Typhoeus (Typhon)—giant with one hundred heads, from each of which came flames and ear-piercing screams; the Olympian gods, terrified by the beast, fled to Egypt but Zeus soon returned and killed the beast with his thunderbolts. (see Egyptian Neha-Hra and Set)

In *Sinbad and The Eye of The Tiger*, **a Cyclops prepares to greet a Saber-Toothed Tiger.**

sources for the fantastic goat-bodied Chimaera or the ubiquitous Centaurs were found. The process goes on today as we witness the birth of countless anthropomorphic (manlike) creations and exotic beasts in science fiction books and films. More fanciful theories of beastial origins take us to the philological root of "dragon" which may have come from the Indo-European verb "derk" meaning "to see," which later became part of the Greek "drakon" literally meaning the "thing with the eye" or more dramatically, "the monster with the evil eye." Finally, some mythologists see in the fearsome beasts representations of actual groups of people. Robert Graves imaginatively explains the beasts or unusual creatures appearing in the Labors of Hercules as island pirates, tribal highwaymen, and roving buccaneers of the Mediterranean marshes.

The fascination world of Greek and Pre-Greek mythology offers the fantasy modeler a wide range of individual subjects as well as group dioramas to be fashioned out of history, myth, fable, and the boundless imagination. At the same time mythology offers a wide range of material providing countless hours of illuminating research and leisure reading. ■

For Further Reading

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STAR WARS MINI-RIGS

A Different Breed of SF Model

By ANDREW P. YANCHUS

PHOTO: PHILIP O. STEARNS

Brand new MTV-7 waiting to be sold.

PHOTO: JOE BARRETT

VTOL Transport ready for takeoff.

There can be no doubt that *Star Wars* and *The Empire Strikes Back* have made a major impact on the toy and hobby industries. Over the past several years, we have seen a flood of *Star Wars* merchandise and other space toys and model kits. For a couple of years after the initial theatrical release of *Star Wars*, all types of science fiction playthings flourished, but as time went on, the various lines of space toys thinned, and many disappeared. *Star Wars* items, however, endure, and the toys produced by Kenner, and the hobby kits made by MPC continue to be top sellers.

With the wealth of characters, vehicles, and locals found in *Star Wars* and *The Empire Strikes Back*, it is no surprise that almost one hundred and fifty different toys and kits based on the movies have been produced. But, amid all the scaled down X-Wing Fighters, AT-ATs, and Millennium Falcons, a few strangers have appeared. Last year, Kenner introduced a trio of vehicles called the Mini-Rigs into their line of *Star Wars* toys. Intended as transportation for the 3¾ inch action figures, these toy vehicles had no prototypes in either of the movies. Even so, I found the designs interesting, and went about converting these toys into models. At the same time, I went about tracking down the origin of these Mini-Rigs.

It was boredom that got things started! Mark Duennes, an industrial design student at the University of Cincinnati, was working at Kenner for a few months in 1979 as part of a co-op program. One day, with little to do, Mark passed some time by putting some wheels on the cockpit seat torn out of Kenner's large Millennium Falcon. A supervisor liked the little vehicle, and suggested that Duennes make some others. Five or six designs

were created, and three were presented to the company executives. Further development was approved because Kenner was looking for some low priced vehicles to augment the regular *Star Wars* items.

When Duennes returned to school, the project was taken over by another Mark, Mark Boudreaux. Boudreaux styled the vehicles, and got them to fit all the manufacturing and marketing parameters.

Duennes' transport design remained pretty much intact. The wheels on the multi-terrain vehicle (the Millennium Falcon cockpit item) had to be reduced to fit package size limitations, and the final appearance of this vehicle is the work of both men. The laser tank, however, is basically Boudreaux's; Duennes' design was more of an outrigger type using treads from the radio controlled Sand Crawler.

CONVERTING THE SERIES

As toys, the Mini-Rigs are solidly built little machines that will take a lot of rugged handling. As the basis for display models, the variety of designs provides a nice change of pace from starships and robots. However, some toy aspects of these items make model conversion a bit difficult.

Most of the parts of all three vehicles are made of styrene, but there are also soft polyethylene pieces in the makeup of them all. The guns on all three minis, the landing legs on the transport, and the support legs on the multi-terrain unit are all polyethylene. Although these parts cannot be glued, they are sturdy enough to be sanded (to remove mold parting lines) and painted. The sanding has to be done with the finest (400 and 600 grit) wet and dry papers.

Another problem in converting these toys is that two of them are put together too well! Total disassembly of the MTV and transport is impossible, unless you want to take a saw to them in order to separate the body halves. There is nothing insurmountable about this situation, but some operations, such as filling and sanding seams, become more tricky and time consuming.

One final flaw common to all three rigs is that the detailing is on the sloppy side, and perfect side-to-side symmetry does not exist. In creating patterns for new parts, I found that what worked on the right side often didn't fit on the left!

Despite these minor drawbacks, I was determined to rework all three items. Since the vehicles did not appear in the *Star Wars* movies, I made no attempt to tie them into the universe created by George Lucas (even though they have his approval). I took each vehicle and built on its strong points, while eliminating weaknesses and modifying the design to fit my own concept of what it should be.

LASER TANK

The MLC-3 Mobile Laser Cannon was the easiest Mini-Rig to convert. Except for the clear bubble the entire toy is held together by two screws, so disassembly was no problem.

There were two aspects of the tank that bothered me. First, the treads were simple ribbed strips with no drive wheels or boggies to support them. The treads also bent at nice sharp angles at the corners.To replace these with more conventional tank treads would be too complicated, and I eventually conceded that an alien race would develop tank propulsion that would not resemble ours! One thing I could not ignore, however, was that there wasn't enough room for the tread to pass under the rear fenders of the tank. So, I extended the fenders.

The large clear dome also disturbed me. All three Mini-Rigs are intended to be used with the *Star Wars* action figures, which are approximately 1/20 scale. The size of the dome reflected that large scale, and in my eyes, made the rest of the tank too small. The dome is also marred by two deep grooves required to form the snap tabs needed to keep the dome attached to the hull. The dome had to go! It was replaced by an electronics turret made from a circular container for a cavity-producing product called *UFO Candy*.

The new turret altered the size concept of the tank, and I decided that 1/48 would be the realistic scale for the modified MLC-3. Although the transparent bottom of the turret would reveal some interior detail and crew, I needed something outside the tank to more readily establish scale. Thus, the wounded soldier was added, resulting in a scene that is much more interesting than the tank alone.

The extra armor plates added to the tank hull were the rectangular bases found in sets of 1/48 scale military figures made by Bandai. Common staples became the grab irons. The wounded man was made up of parts of ESCI and Bandai figures, and the tower is a *Tickle* antiperspirant bottle.

VTOL TRANSPORT

The PDT-8 Personnel Deployment Transport is divided into two compartments—the forward one is intended for passengers, while the rear one is for the pilot. I tried keeping this unusual arrangement in my conversion, but I couldn't get it to work in the more serious approach I was taking with my model. As with the laser tank, the intended "real size" of this vehicle was too small. After juggling sizes and design concepts, I finally arrived at 1/48

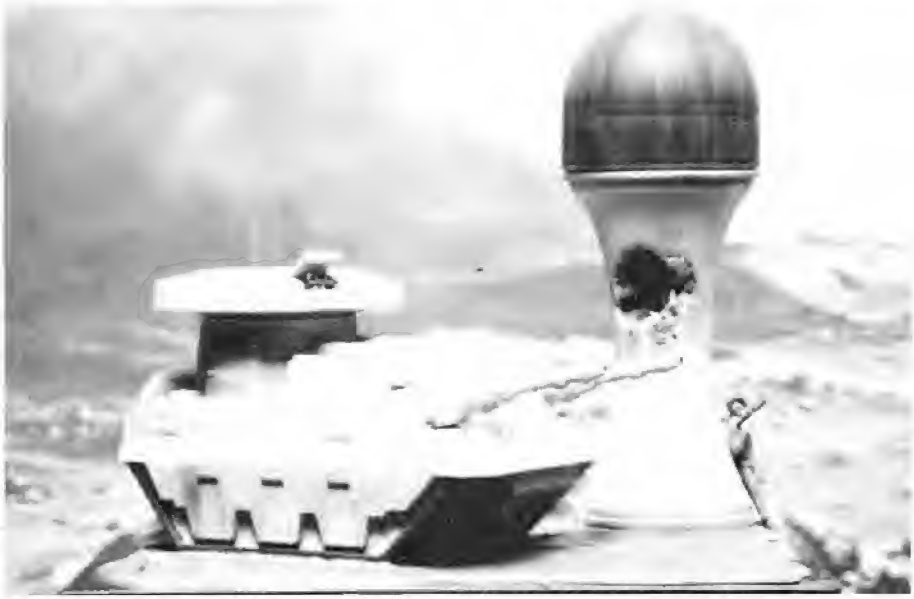


PHOTO: JOE BARRETT

"Seeker"—A futuristic confrontation between man and machine.

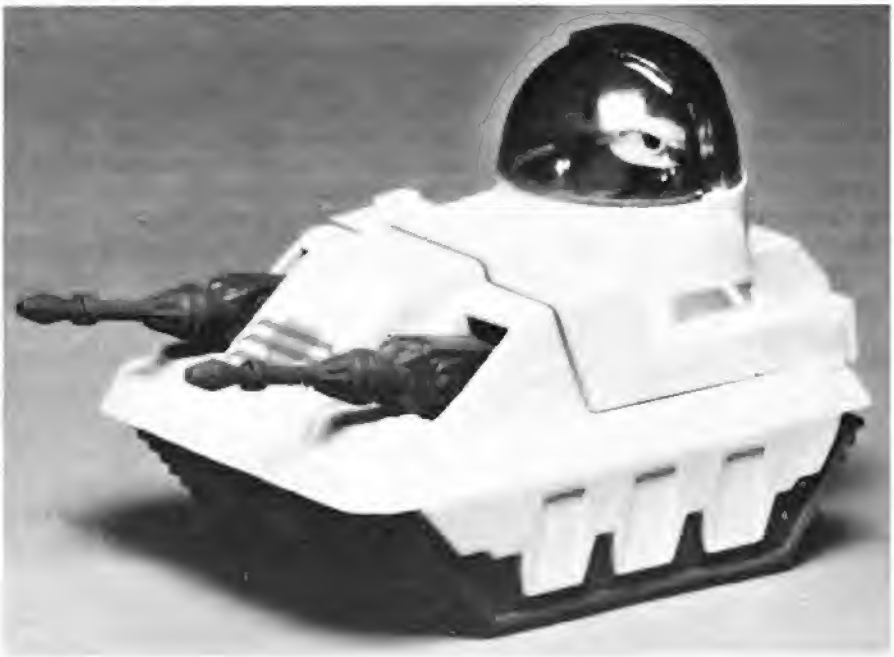
scale and a conventional pilot forward/cargo aft layout. In my mind, the vehicle became a small aerial pick-up truck.

The interior of this Kenner toy is very bare, so I had to build an entire cockpit and cargo compartment. Most of the cockpit, including floor, seats, and crew, came from a Monogram Huey helicopter kit. On the other hand, the cargo area was almost all sheet styrene, with only a few kit parts added for detail. The entire cockpit area was covered with flat pieces of clear sheet styrene, which were partially painted to match the fuselage.

The toy is made of left and right halves that are glued together at the factory. It is next to impossible to separate the two fuselage halves, which also incorporate a thick wall that divides the cockpit and cargo areas. The joints in the middle of this wall cannot be eliminated with putty and sanding, and I found that the easiest thing to do was to cover the points with pieces of plastic cut to the full width of the interior. The size and shape of these pieces, and all the other interior panels and cockpit "glass," were established by cutting and fitting paper patterns to the model. The final paper cutouts were then duplicated in plastic.

The loading platform seen behind the transport was made from three discarded *Polaroid* film packs. (Not all the film packs have that nice detail on the end; I found that detail only on one out of every three packs.) The landing pad for the transport was a cottage cheese container lid with the rim cut off. The various cargo containers are the same types I described in my Odds & Ends column in FANTASY MODELING No. 5.

The three original Mini-Rigs as produced by Kenner. Look for two more later this year.



MULTI-TERRAIN VEHICLE

I had all three Mini-Rigs under construction at the same time, but the MTV-7 was the last to be finalized. While the first two models were being completed, I kept thinking about what to do with the last one. Since it was supposed to be a "go anywhere" vehicle, I envisaged all sorts of settings for it from deserts to swamps. I finally settled on an off-beat idea that did away with all the harsh alien landscapes—I plopped the vehicle down in a new car showroom! Unfortunately, as the scene developed, the MTV-7 became secondary to a potential customer and a robot salesman, but that was part of the fun of building this model.

As with any toy conversion, work on this Mini-Rig started by disassembling as many parts as possible. The main body parts and tire halves were already glued together, and were left that way. But, the spring loaded legs were held together with screws (one for each pair) hidden behind the dark gray disks at the top of the legs. You have to be careful in removing these tight fitting disks. If you pry them off, you could deform the soft polyethylene legs. It is probably wiser to drill a hole in the disks to get at the screws.

I built up the interior using a seat and dashboard from a Jeep kit, and used leftovers from other car kits for headlights, grill, taillights, and other details. The parts on hand, and my desire to keep my models to standard scales whenever possible, dictated a scale of 1/24 for the MTV-7—not far off from the 1/20 Kenner originally intended.

The female figure came from an accessory figure set imported from Japan. The robot was free from *Burger King*, but I needed my six-year-old nephew to obtain it for me! Details for the robot came from the scrap box, and all the paneling was done with decals.

CONCLUSIONS

Because of the different materials and assembly methods involved in toy construction, converting toys into display models is quite often harder and more time consuming that assembling and modifying regular kits. The end results, however, more than make up for the extra effort, for the variety and quantity of subject matter increase dramatically when science fiction toys are considered as modeling material.

Kenner's three *Star Wars* Mini-Rigs provide a broad base for imaginative model building. My examples are just the tip of the iceberg. What wild modifications and settings can you conceive for these models? ■

Adventures In Gaming

By MIKE KILBERT

The following communique was intercepted by our spies in the Adventure Gaming section. It is addressed to "Dealers and Distributors," but it will be of interest to you. Here are some excerpts:

OGRE AND G.E.V RE-RELEASED

OGRE and G.E.V., the bestselling games about supertank combat in the year 2085, have gone into new printing and will be available at this year's HIA show. (Dallas, Texas; January 1982).

The games have been off the market for some time, due to legal questions between the designer (Steve Jackson) and the original publisher (Metagaming). However, in a compromise agreement dated Nov 17, Metagaming recognized Jackson's ownership of all rights in the two popular titles.

Both games are considered classics . . . . . and have received many favorable reviews . . . . . .

The new editions will be upgraded, with larger full-color maps, back-printed counters, revised rules, and other play aids. The size and price will remain suited for any gamer's pocket.

Several other OGRE products will be available at HIA, including:

*Miniatures—The Award Winning line of OGRE miniatures, originally produced by Martian Metals, will be re-released by SJ Games. Initial x units will be the Paneuropean Heavy Tank Missile Tank, G.E.V., Howitzer, and Mobile Howitzer, as well as a re-sculpted Ogre Mk. V. New units will follow.

*The Ogre Book, Vol. 1—This will be a 40-page collection of the best OGRE/G.E.V. articles from the early days of THE SPACE GAMER—including many now out of print. Subjects include scenarios variants, strategy and tactics, fiction, and design notes.

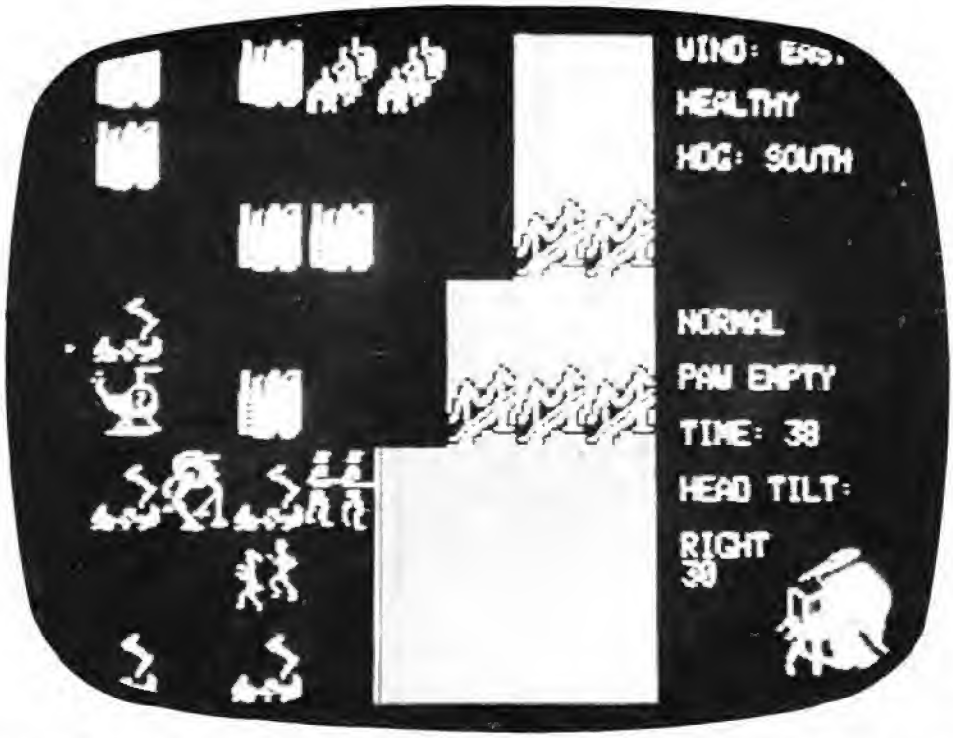
We will try to get more information as it becomes available from

Steve Jackson Games
Box 18957
Austin, Texas 78760.

COMPUTER GAMING

PART TWO: Software

By MIKE KILBERT



Still think that microcomputers are just a toy, a fad? Well don't tell IBM. The giant of the computer industry should have its own personal computer system available by the time that you read this. Companies like IBM don't make mistakes about what the future will be and they certainly aren't inclined to get involved in fads.

On the horizon, the Japanese electronic industry is prepared with their own invasion into the market. Before you know it, you might just be the *last* one on your block to have your very own personal computer. In this column I hope that I can help you to make some intelligent choices about finally taking "the plunge."

The importance of all this activity is the increased competition among the manufacturers of both hardware and software game systems. You will get the advantages of this heated-up competition in three ways: 1) those companies that already have systems on the market will have to either upgrade or improve their existing merchandise to deal with their new competitors; or 2) they will have to make some changes in their price structure (lower, lower, and lower); or, most importantly, 3) they will have to make their computers more attractive by offering the consumer an even greater variety of games and other related software. (Of course, some manufacturers may make more than one of these changes.) No matter what happens, it will be better for you.

In my last column I spoke at length about software, or the programs that you feed to your computer. This time around I will be dealing with the computer itself (the hardware of the system).

Most people are very quickly thrown off by the language of the computer industry. You will find that most people who are very interested in computers (just as other people who have their special interests) don't seem to be able to understand that not everyone has either their knowledge or their enthusiasm. They seem to be dropping a lot of information on you and they don't seem to sense your predicament. You will either have to assert yourself and make them understand that you are lost; or you can just muddle through by the trial-and-error method. (When you see some of the prices on computer hardware, you will be hesitant about trying to learn from your mistakes.)

A few years ago I was first exposed to one of these fanatics and I'll never forget how quickly he boggled me. I was just asking about the possibility of running a mailing list on one of the home computers and he gave me such a convoluted explanation of what I could or could not do, that I was scared off. If this was the explanation, I thought that I probably wouldn't be able to deal with a computer.

When I started to write this article I was lucky to find people who would explain all of this to me without fogging my pea-sized brain. What I found out should help you to make a rational decision about buying a computer for yourself.

The computer itself consists of three basic parts: the keyboard, ROM, and RAM. (Some computers also have a built-in computer display). The keyboard is your connection with the computer. All information you want to relay to the computer must come through your typing a message into the keyboard.

Make sure that when you are looking for a computer that you try out the keyboards of the machines you're interested in buying. It is the link between you and the computer, so it is very important that you can comfortably "talk" to your machine. Some computer keyboards are so small that you cannot type quickly without hitting more than one key at a time. On other machines you will find that it takes a lot of effort to type. If the keyboard doesn't feel right then you must consider a

very, very serious drawback. If you can't turn the steering wheel, you wouldn't buy the car.

Another question about keyboards is the type of keyboard that you may be choosing. On the Atari 400, you have a sealed keyboard where you don't push down on any keys, you only push down on a sensitized spot. This type of keyboard slows down your typing speed. The advantage of the sealed keyboard is that you don't have to worry about spilling drinks or getting dirt or grime into the computer. Anything like soda, crumbs, etc. that could get onto a regular typewriter keyboard would eventually end up jamming the works of your computer. If your kid brother is going to use the machine with you, then it might be a good idea to get a sealed board. If the area that you're going to use the computer is dirty or dusty, then this type of keyboard might have some advantages. Decide before you buy and save yourself some headaches later on.

MEMORY—ROM OR RAM

The computer has two different kinds of memory—ROM (Read Only Memory) and RAM (Random Access Memory). If you stroll into your local computer store, you might hear: "This system has 8K in ROM and 8K in RAM. The RAM, or course, is expandable to 64K." Huh?

ROM is the permanent memory of the computer. You *cannot* change it; it is *not* programmable. This is the built-in operations of the computer. When the salesman tells you that it is 8K, he is telling you that the capacity is 8,000 characters (letters, numbers, punctuation, symbols, etc.). The ROM tells that computer what to do when you press the on/off button, when you push the return key, when you type in a letter or number. Every computer has its own different ROM. But for all of them it is the starting point for all operations. The computer knows how to add, subtract, multiply, etc. because of the information that is stored in the ROM.

On the other hand, RAM is that part of the computer that you can "program," it is changeable. For instance, you could load a series of numbers into RAM. You would then "tell" the computer to add these numbers. The computer would read the numbers out of RAM, and read how to add from its ROM section.

It's a lot like the way your mind works. In your brain you have stored a lot of information on how to do things—adding, walking, subtracting, . . . As you walk down the street, you stop to buy a newspaper. You give the man a dollar for a 25¢ paper—both these facts go into your RAM. The ROM part of your mind says subtract and tells you how to do it. $1.00 minus 25¢, you expect three quarters change.

The more capacity your computer has in ROM and RAM, the more versatile it will be. (Unfortunately, the more memory you have, the more expensive the computer system will be. You must trade-off money for memory). Most microcomputer systems now have 8K in ROM and 8K in RAM. RAM can be expanded but it is rather expensive—usually a few hundred dollars.

Another consideration is "peripheral" or external memory. You can store information on cassettes or floppy discs and then ask the computer to "read" it. For instance, you could feed the computer the names, addresses, phone numbers, birthdates, shirt sizes, and favorite colors of all your friends. Then tell the computer to make a list of all the birthdays in November, along with their favorite color and size. Storing it in RAM would not be permanent, it would be erased as soon as you turned off the computer.

You have the option of putting all this information in memory outside the computer. Once you have recorded this listing on either the cassette or the disc, you can just "read" it into the computer. Once the computer has generated the November list, you can remove the cassette or disc and keep your original information "permanent" for later use.

To put all this information on the cassette/disc you have to feed it into the computer and then have the computer record it. The machine has its own language (which is part of its ROM) and it will translate your list.

This point about the machine's language is quite important because your cassette/disc can *only* be read by computers of your type and manufacturer. A birthday list that is done on a TRS-80 *cannot* be used in an APPLE computer. This is also true for programs that you buy. If you are looking for a game or program for your computer, you must make sure that it is specifically designed for your machine. A game program is only a "list" of instructions that the computer reads from the external memory source.

THE VIDEO DISPLAY

While the keyboard is your method of "talking" to the computer (making it part of the INPUT process), the computer "speaks" to you through the video display (part of the OUTPUT process). The video display is basically a TV screen. Some computers have built-in computer displays which make them a complete self-contained unit. Other computer systems are designed to be hooked-up to any home TV set that is available. Logically the computer systems that do not include video displays will be less expensive, but a TV set must be accessible before you can use the computer. So you are faced with another choice: finances versus type of video display. Not having a built-in display does have the possibility of using a 21 inch or 24 inch TV which is larger than most built-in displays of 12 inch or less.

No matter which video display system you choose, you should be aware of your computer's color capability. It is not supremely important, but it is something to think about when game systems are being used.

YOUR FUTURE SYSTEM

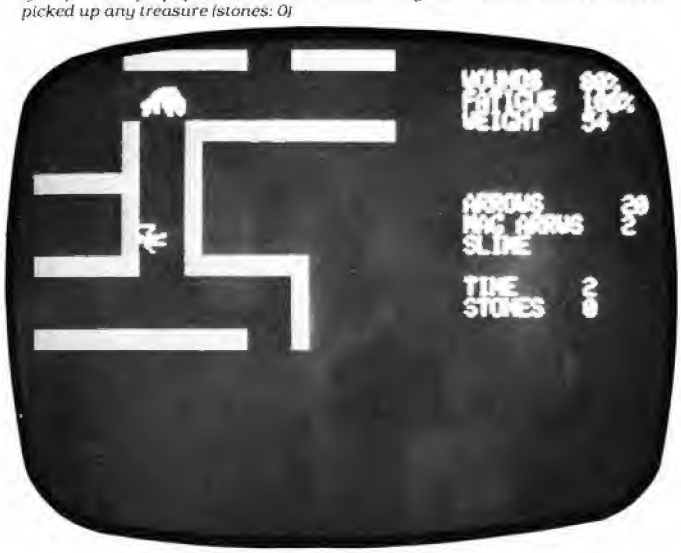
Unfortunately because of the very high prices on hardware it is necessary for you to make some decision about the future use of your computer when you are first buying it. You may find that a piece of hardware that you might be interested in, is not available for your computer. Or is so outrageously expensive that it would be cheaper if you started with a different system. For example, if you start with a cassette system for external memory, you may find that one computer will cost you

Computer Checklist

1. Price?_____
2. Keyboard: sealed_____typewriter-type_____
   Do I like its action?_____
3. Memory: ROM capacity_____Expandable?_____
   RAM capacity_____Expandable?
4. Video Display: Built-In_____External_____
   Color capability?_____
5. Other Hardware: Availability/Price
   Cassette recorder_____
   Disc drive_____
   Printer_____
   Modem_____
   Other desirable hardware_____
6. Can I get the games that I would like to play?

I start my adventure in a corridor. I have not been hurt yet (wounds: 100%). I am at full strength—I haven't done anything yet (fatigue: 100%). I am carrying a load of 54 pounds of equipment, 20 arrows, and 2 magic arrows. Time: 0. I have not picked up any treasure (stones: 0)

I run into a robber at Time: 1. I killed him. . . . . .



. . . . but he hurt me. I am down to 80% on wounds. Good thing I still have all my arrows. I hacked him up with my sword. I hope I can take care of myself. SLIME is ahead

SWISH. I got rid of the SLIME. But it took both of my magic arrows. It did a lot of damage to me: I am down to 33% on wounds. (If I go to 0% then I am dead). I am getting tired from all this fighting (fatigue: 88%). With all of this action I haven't found any treasure yet.

$500, while another is $600. If both systems appear to be equal, you feel sure that you could save $100 on the first one. But you might find that when you decide to upgrade the system in the future that the disc drive for the first system is $300 more than the disc drive for the second system. Your saving is more than shot. A little planning now could save you quite a bit of money later on.

OTHER ACCESSORIES

Besides the cassette recorder or disc drive the other most popular accessories are printers and modem. With the printer you can "tell" the computer to type out information instead of just displaying it on the screen. You can "write" reports on the screen, make corrections, and when it's just right you can then "tell" the computer to print it out.

The other accessory, modem, is probably more exciting because of its unlimited possibilities. With a modem you can tie your computer into other computers through the use of your telephone. You can "talk" and play games between your computer and someone else's computer anywhere in the world.

Sooner or later you'll get caught up. Use this article as a guideline. Try to make a wise decision. Collect catalogs, try out demos, write to the manufacturers, read the microcomputer magazines, and finally read the reviews for computer games. Good Luck and Good Computing! ■

Solitaire—Opponentless Gaming

The worst thing for a gamer is to bring a game home from the store and find he has no one to play with. He's been dying to get this game and there's no one to face him across the board. Game manufacturers find themselves bombarded with letters from gamers who want solitaire games. The problem is that solitaire games usually aren't that good. They are not as enjoyable as facing an opponent.

So what do you do when you need or want an opponent? Turn your wife into a gamer? Make your newspaper boy play? Kidnap the neighbor's kid and lock him in the basement? Teach Fido how to make the right moves? Run around the board from one side to the other? No, no, no, no. Just get yourself a computer.

The computer is a perfect opponent. You have to try your hardest, it's never too tired, it's always in the mood, it's always there, and the games are getting better and better.

And if you're getting bored with the games on your computer, get a modem and challenge someone else's computer. In the past, gamers who couldn't find opponents were forced to PBM (play-by-mail), now they can PBC (play-by-computer).

POINTS TO REMEMBER

Phil, Dave Kennedy and I were discussing use and care of brushes when we met at the 1981 Annual NCMC show in Maryland. The problem concerned the tendency of brushes to lose their fine points after the painting of six or so models. That should not happen to good brushes, properly cared for, so at Phil's request, here are some professional tips about brush care. I still have some of my well cared for sable watercolor brushes from pre-war days at Disney's, and the brushes are in better condition than their owner.

The following thoughts are based on experience as a professional artist, but the course of my knowledge is the writings of the late Ralph Mayer, author of "The Artists Handbook of Materials and Techniques." Without exception, I value his book above all others in my professional library. No one painting seriously should be without this book, just updated and republished since his death.

Ralph Mayer recommends use of petroleum distillate or mineral spirits as a dilutent or solvent for oils. Some trade names are Beisol or Varnolene. Most paint and hardware stores stock it in gallon cans, and you'll find it considerably less expensive than traditional turpentine. Many brands are 'odorless,' but the only one I know of that is odor free, but more costly, is the new type marketed by Winsor & Newton.

Mineral Spirits is a fine brush cleaner, paint thinner and solvent which does not develop the sticky residue around the cap as is common with turpentine. Look at your present turpentine, if that's what you're using, and you will note that the gummy stuff around the top is amber in color. That faint amber color is imparted into the oil you paint with, whereas mineral spirits add no color. Painting tradition alone argues for turpentine, so try mineral spirits. You'll save money and get equal or better painting results.

Mineral Spirits is equally fine with oils or alkyds-any enamel based paint, but that solvent isn't the protector of your fine sables. Proper soaps are the answer in part. Particularly important for water based paints such as acrylics or casiens (Plaka being one), which are hard on your costly brushes, I recommend you get a small bar of Ivory hand soap, shaving or cutting it down to small chips. Put these chips in a jar with clamp or screw top, and add an equal amount of warm water. Let this set until the chips are dissolved to a consistency of heavy cream. Now, before you touch your brush to *any* paint, dip the brush in this solution and pull it through a paint cloth or towel, removing most of the soap. Then start painting.

Here's what happens. The residual soap film has put an invisible coating on the brush hairs—a coating which will in no way impair the flow of paint or its function. When you have finished painting, gently wipe most of the paint from the brush, pulling it through your paint cloth. If using water based paints, suspend the brush in a water jar until ready for complete cleaning. If oils were used, put the brush in a small jar of mineral spirits. When ready to clean, run the brush under warm tap water and slowly swirl the hairs in the palm of your hand. This action dislodges most remaining paint.

An excellent new product, which seems costly at first, is "The Masters Brush Cleaner and Preserver." The company also makes "The Masters Paint Soap," a bar for cleaning hands and skin. Both are excellent, non-toxic brush cleaners, the former being fine for brush restoration.

Restoration requires other effort. As one paints with oils, almost microscopically thin layers of paint are left on the outer surfaces of these select, small hairs. Eventually, and unnoticeably, these layers build up, adding thickness to the hairs. In the worst case, for a neglected and uncleaned brush, removal of the dried paint requires a paint remover. Formbys is excellent and expensive and Zip-Strip is equally good and less costly. Pour a small amount in a little jar, dipping the brush in just deep enough to cover the junction of the metal ferrule and hairs. After about fifteen minutes, remove the brush and try washing it with soap, twirling the brush in the palm of your hand. Repeat as necessary until you can begin pressing, dissolving paint from the ferrule, pushing your thumbnail over the ferrule onto the hairs (see drawing). Continue this until you are satisfied the brush has been returned to normal.

If you've cared well for your brushes yet still have loss of point, pour some acetone in a small jar and do as you did with stronger paint remover. Acetone, best used with adequate ventilation, is non-toxic, evaporates rapidly and is highly flammable. It is an absolutely fine solvent, particularly for acrylics. Denatured alcohol, bought in bulk, is the other great all-purpose solvent for acrylics and is ideal for removing dried acrylic from fabric and tools. Acetone will dissolve oil paint, so avoid getting it on your brush handles. Denatured alcohol has virtually no effect on oils.

Having cleaned your brush periodically with the removers mentioned, there is a need to regain the brush's original shape. The simplest way is to make a gentle lather with the "Old Master," reshaping the soap laden hairs into a new point by pulling the brush between your fingers. The Ivory soap solution will work also, as will a solution of *Tide* (by itself an excellent paint remover), or *Axiom* (predetergent booster which is good for acrylic clean-up). After your brushes have dried, with this solution holding the shape, again rinse the brush gently in warm water, and holding the brush by its handle tip, shake it into a point with a vigorous downward snap. In stubborn cases, you may have to repeat these procedures.

Brush care is vital to those of us who earn our living as artists. It should be equally important to you, in that brush quality rather than size is critical for miniature painting. Brushes are costly investments. The same brushes I bought for two or three dollars in the early forties now cost $75.00 or more. And while these cleaning recommendations are for top quality brushes, they are equally valid for inexpensive ones. The best advice is to economize wherever possible, but not buy "bargain brushes." Buy the best brushes you can afford! One Kolinsky sable in size 2 or 3 will serve you far better than a few dozen cheap ones, and you can't go wrong with proven quality brushes such as Winsor & Newton, Grumbacher and Strathmore, for examples. If your budget won't let you buy the very best, try the newer line of inexpensive sable brushes from Floquil/Polly S. You'll get three or four very good figures from them and can then continue to use them for broader applications.

—WILLIAM S. TILTON

BUILDING AN ALL-WEATHER SPRAY BOOTH

Spray painting made easy

By JEFF POLLIZZOTTO

This month's article is a slight departure from my previous features. I won't be discussing how to build better minaitures but how to construct and use a tool that will make working on your models easier and more convenient.

For those of you who have small work areas or must share a work space with the living area or an extra room, spray painting your miniatures could be a major problem. As you know, adequate ventilation is necessary for over-spray and paint fumes whenever spraying. This requires painting outdoors or in a well ventilated work area which many of us don't have access to (myself included).

If your work shop is in a garage, the problem is not as apparent. The door can be opened for ventilation during your spraying sessions. Even so, this method has its problems. How do you get the required ventilation during bad weather or winter when the door can't be opened? The same problem occurs if you live in an apartment and don't have access to a garage at all.

To remedy this problem, I have designed and built a spray booth that can be assembled in one day, used in any weather and cost under $30.00.

The design shown is actually the third in a series of spray booths I have built and used over the years. The first was a simple cardboard box placed on the floor next to an open window. An 18 inch fan was set up in the window (blowing out) and provided the ventilation for the room.

This design had two major flaws to it. Frist, it really didn't work all that well (the fan was too far away from the booth and didn't provide the needed ventilation fast enough) and I still couldn't spray during bad weather.

The second design built was a simple modification of the first. A similar cardboard box was built but this time I added an 18 inch square cardboard shroud to the back. The booth was then placed on a chair and set up in front of the fan placed in the window.

This second booth was much more effective than the first and would pull the paint fumes out of the room quickly. The sprayed parts also dried much faster. An added advantage not originally planned for.

This spray booth worked out well for some time but I still had the problem of painting during bad weather. A more useful (and even more powerful) version with this advantage built-in was needed.

The cardboard box was replaced with one built out of ½ inch thick wood (plywood or pressed wood work equally as well). In place of the 18 inch fan, a more powerful and compact squirrel cage blower was incorporated into the design. During construction, I decided that mounting the blower to a piece of wood (that would fit securely in the window) would be the best way to construct this third and final design.

This sytem would give me the ability to close the window on top of the wood giving an effective seal from the weather. A clothes dryer hose (the kind found in hardware stores) would then connect the blower at the window and the spray booth. The booth could then be placed in any convenient location in your work area.

The squirrel cage blower can be found in most surplus parts stores for around $10.00 to $15.00 (depending on size). You should look for a blower with the intake hole the same diameter as the vent hose (usually about 4 inches). I found mine for $12.00 in a used blower and fan shop.

Following the diagram of measurements shown in the drawings, cut out the part that make up the actual spray booth. You will need two sides, one bottom, one back and two long stripes as pictured. One attaches to the front of the booth, the other attaches to the top forming a shelf for the spray cans.

I used two pieces of 2 foot x 4 foot pressed wood for all the box parts. The piece that would later mount in the window was cut from the second 2 foot x 4 foot sheet. You may be asking why I used two smaller pieces of wood instead of one 4 foot x 8 foot sheet. I found the smaller sheets less expensive, easier to handle and cut to size.

After the parts were cut to size, the edges were sanded smooth. The booth was then glued (using white wood glue) and nailed together. When the glue was dry, a 4 inch hole was cut into the left side of the booth. This is where the vent hose is mounted. Using the thin tailpiece supplied with the vent kit (see diagram) and the two plastic clamps (also supplied), the hose was attached to the side of the box (see photos).

A hole was then cut in the second piece of wood (the window piece). Holes were drilled and the squirrel cage blower was mounted. The plastic vent shroud was mounted to the opposite side (facing out).

Mounting the vent hose to the blower was the next step. Using the plastic flange plate supplied with the vent kit, the opposite end of the vent hose was punched through it. The plastic covering was trimmed and taped to the inside of the flange plate. Holes were then drilled through the flange plate and blower housing. The plate was then screwed on to the housing using self-taping metal screws. I wanted to make the entire unit as air tight as possible so GE black silicone sealer was put between the blower housing and the flange plate during assembly.

Working with the "all-weather" spray booth is a pleasure. It is a simple and inexpensive solution to the problem of spray painting in your home or workshop. ■

MATERIALS LIST:

WOOD . . . . . two 2 foot x 4 foot or one 4 foot x 8 foot sheet of plywood
SQUIRREL CAGE FAN
DRYER VENT KIT
POWER CORD
ON-OFF POWER CORD SWITCH
MISC.: nails, white wood glue

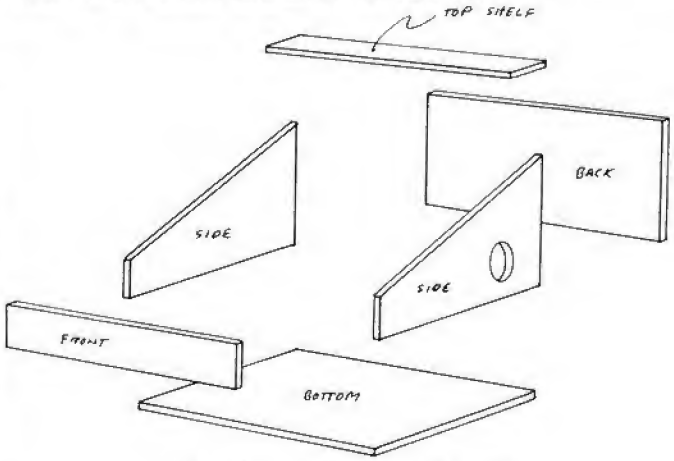
Overall view of the spray booth as it is set up in my workshop area.

Photo shows the fan mounted in the window. Wood is cut to the exact size of the window.

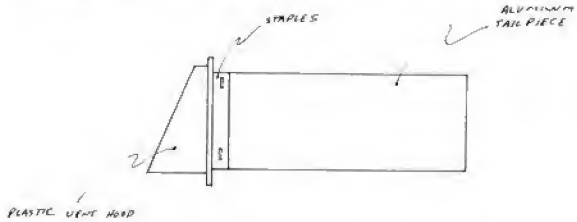
Head-on view of vent.

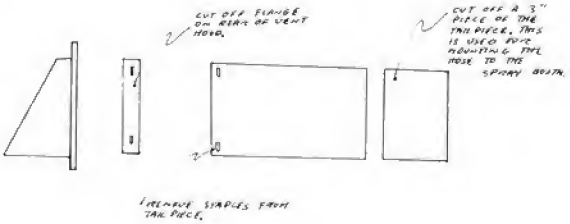
The vent shroud mounted on the window.

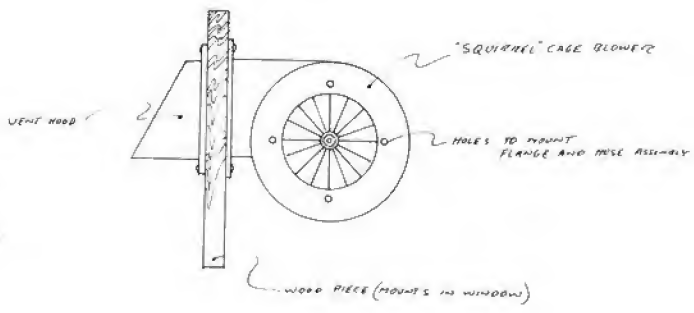
Dryer vent tube



EXPLODED VIEW OF SPRAY BOOTH







SIDE VIEW OF BLOWER/VENT ASSEMBLY

MODEL ROCKETRY
CONVERTING NON-FLYERS

By MICHAEL A. BANKS

This time out, we'll start with a look at plastic conversions—the technique of converting non-flying (static) models of space- or air-craft to flying models. As with any model rocketry activity, the first consideration in conversions is safety, which translates into stability in this application.

The basic parameters for stability in a flying model rocket are light weight, a center of pressure (CP) as far to the rear of the rocket as possible, and a center of gravity (CG) at least one body diameter ahead (toward the nose) of the CP. These requirements often dictate the design of a rocket. For example, a short rocket would normally have a CG and a CP that are too close together. To compensate, nose weight can be added to move the CG forward, and larger fins attached to move the CP toward the rear. Or, if length is not a fixed requirement, the fuselage of the rocket may be lengthened, which will add weight and move the CG forward.

With those basics in mind, it is easy to eliminate most plastic models as potential candidates for conversion to flying models. For example, a TIE Fighter is almost all "fins," with a CG and CP at almost the same location, and a Cylon Raider can be eliminated because it is finless and would suffer from the same problem as the TIE Fighter even if fins were added. (In case you're considering the Space Shuttle, forget it. It is almost impossible for even experienced modelers to successfully convert a plastic model of the Shuttle to fly because of the placement of the wings and rudder. Most model rockets require fin placement to be in patterns of three fins 120° apart, or four fins 90° apart. The Shuttle's wings and rudder are asymmetrical in this respect.)

Few models manufactured by the plastic people are ready-made for conversion, however. For example, the Airfix Saturn V is very stable, albeit a bit heavy. Its configuration is almost the same as that of the flying models of the Saturn V manufactured by Estes and Centuri. Or, if you're lucky enough to have some out of production kits such as Revell's V-2 or an Apollo "Little Joe," you'll find these very stable because of their length and large rear fin area.

Converting stable kits is mainly a matter of installing a length of body tube through the fuselage of the rocket, cutting or drilling through bulkheads as necessary, and separating the nose cone so that it may be blown off at ejection. Add an engine mount and a *large* parachute (remember, this is heavy plastic you're working with!), and you're in business, provided you've constructed your model carefully.

Flying plastic conversions requires higher power engines than average kit-built model rockets, of course, due to the extra weight. A conversion such as the Airfix Saturn V is best flown with a D engine, or a cluster of three or four C's. Smaller conversions, such as the V-2 mentined above, may be safely flown with B engines. In any event, be sure to choose an engine with a low burn time and high average thrust. As a guide, keep in mind that the higher the number following the letter in an engine code, the higher the average thrust. For example, a C6 engine has more "kick" to it than a C5, and a B14 will lift off quite a bit faster than a B4. You'll need that extra kick, too, to get that weight up and moving!

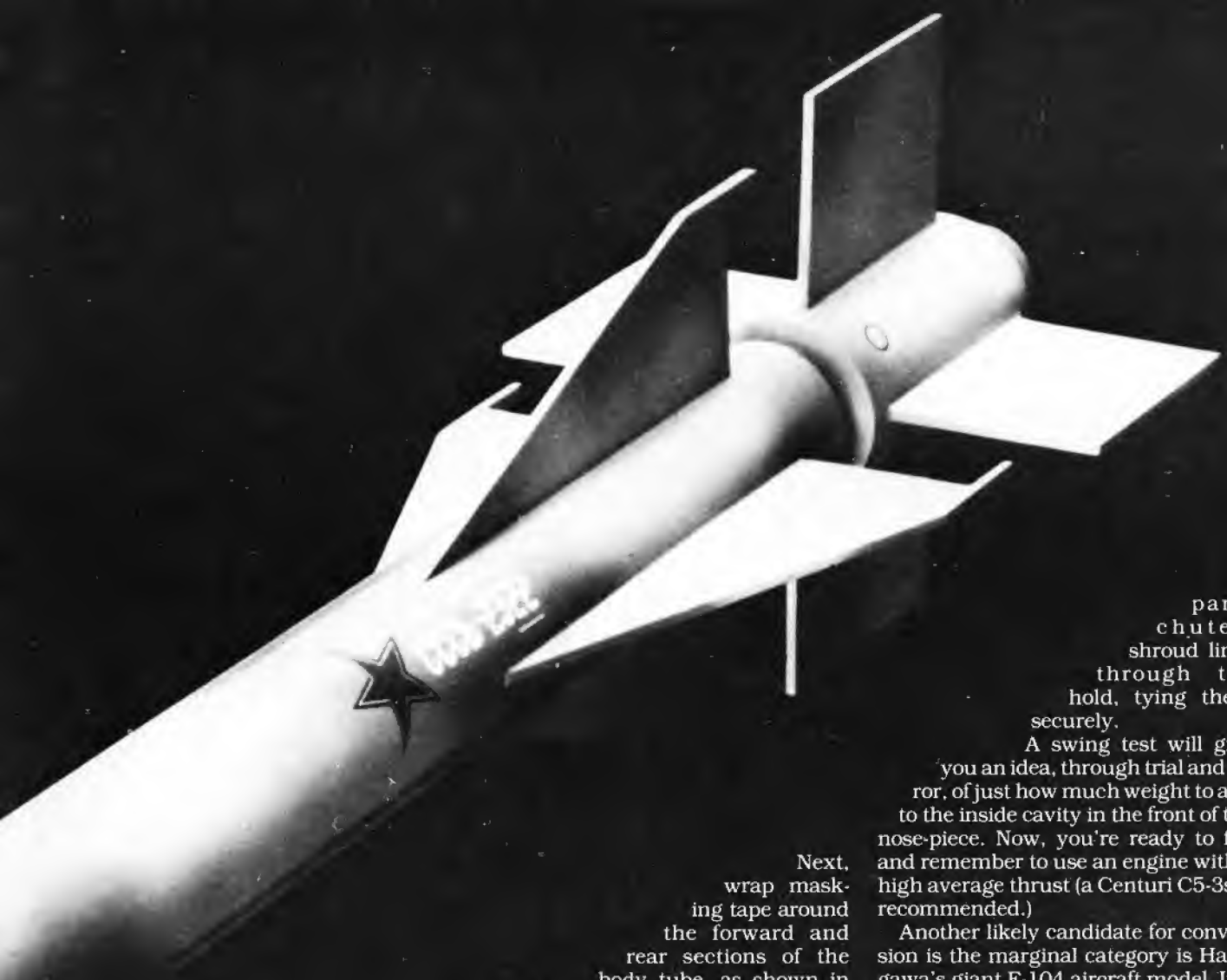
We've discussed some kits that can't be converted, and some that can be easily converted. There are some few others that may be considered "marginal" in their potential stability. The Colonial Viper, of *Battlestar Galactica* fame, is in this category. It has a large rear fin area, with the fins arrayed in a pattern that is close to symmetrical, but the length of the fuselage beyond the leading edge of the fins is short. Too short, in fact, to keep the CG far enough ahead of the CP.

This problem can be rectified, of course, by adding weight to the nose. This will move the CG far enough ahead to ensure stability. At least one ounce of weight—either in the form of melted lead formed to fit in the nose cap, or other objects such as pennies or washers—is required.

Figures 1 through 5 illustrate how the Viper conversion is carried out. You'll need the following parts:

1 Monogram "Colonial Viper" kit (#6027)
1 Centuri #7 body tube
1 18 inch length of

PHOTOS: MICHAEL A. BANKS



shock cord
1 engine lock
1 standard launch slug
1Centuri coupler HTC 7-A

In addition, you'll want to have on hand plastic and Ambroid cements, masking tape, and balsa scraps.

Before beginning to assemble the kit, cut the two plastic rods out of the two forward body halves (this is to permit the body tube to pass through the body.) Omit the construction of the missile launcher. Next, cut the body tube to a length of 11 inches, and insert it into the two assembled halves of the plastic body of the Viper.

Push the body tube forward so that it extends ¼ inch from the front of the plastic body, and cut away any plastic inside the body that prevents the tube from passing through without crimping (after removing the tube, of course!)

Next, wrap masking tape around the forward and rear sections of the body tube, as shown in Figure 1, and use Ambroid cement to glue the tape rings and body tube to the plastic body interior. Set this assembly aside to dry.

Find Part 2, as listed in the Monogram instructions, and cut on the dotted lines as shown in Figure 2, using either a razor saw or exacto knife.

Glue part 2 to part 11, using plastic cement, per the Monogram instructions. Next, glue Monogram parts 18, 6, and 4 together. Set these aside to dry, and drill a hole the same diameter as the Centuri body tube in part 8, as in Figure 3.

Following this, cut your balsa scraps to make launch lug standoffs, and attach them to the Viper bottom piece in the launch lug locations shown in Figure 4, using Ambroid cement. Attach the launch lugs to the standoffs, using Titebond cement. Next, slip the tube coupler over the base of part 10 (the Viper nose-piece) and glue it in place with Ambroid. You should also slip the shock cord between the nose piece and coupler at this time. See Figure 5.

Attach the shock cord's other end to the body tube and finish the Viper assembly, painting it as you wish. When everything is assembled and dried, drill a small hole in the coupler and run your parachute's shroud lines through the hold, tying them securely.

A swing test will give you an idea, through trial and error, of just how much weight to add to the inside cavity in the front of the nose-piece. Now, you're ready to fly, and remember to use an engine with a high average thrust (a Centuri C5-3s is recommended.)

Another likely candidate for conversion is the marginal category is Hasagawa's giant F-104 aircraft model. It is fairly light in weight, and has a large rear wing area (some nose weight may be required, however.) The F-104 was originally dubbed "a rocket with wings," and it flies like one. Rear parachute ejection, as illustrated in the accompanying photo, is recommended.

If you're interested in flying model aircraft as rockets, but don't want to get involved in converting plastic models. Centuri's "Fighter Fleet" may be just what you're looking for. Included in the fleet are an F-104 Starfighter, an F-16, the 5J Israeli "Mirage," the F-4 Phantom, and the F-15 Eagle. All five fly well, and are attractive birds.

You may be interested in "scratch-building" your own aircraft model, building stability as you go. Rich Cardillo, an NAR member specializing in building flying model aircraft/rockets, has had quite a bit of success with this method. (One of his endeavours—an F-104—is shown here.)

FLY THE SHUTTLE

We're primarily concerned with building models of spacecraft here, but when the opportunity to fly the space shuttle came up, we couldn't resist it. It worked out so well, that we feel it's worth telling you about here.

PHOTO ESTES INDUSTRIES

"NASA Pegasus," from Estes Industries.

Opening Spread: "SAM-3," a D-powered, two-stage model

The "flight" was a simulation, of course, and you'll need a personal computer to take the trip. Thanks to Instant Software computerized shuttle enthusiasts can bring the Shuttle home from orbit, and it's quite a trip! The view is from the pilot's seat, and the flight and landing is by instruments, just like the real thing. Be careful, though, you can enter the atmosphere at the wrong angle and burn up, overfly the runway, or err in many other equally fatal ways!

If you're caught up on your building and are looking for something until the weather breaks, fly Instant Software's "Space Shuttle." Happy landing!

NEW PRODUCTS

Two new companies have appeared on the model rocketry scene within the past few months, both offering support products.

A & A Engineering offers three advanced launch control systems, each using advanced "state of the art" electronics, including piezioelectric sound transducers for continuity checks, and nickel-cadmium power supplies, as well as CMOS circuitry.

Reaction Technology, Inc., is a firm offering a diversified line of model rocket support products, including parachutes, airframe materials, and high-technology electronic gadgetry. RTI also sells high-power engines at discount prices.

Estes Industries has introduced several new sport flyers for 1982, including the "Yankee," the "Pegasus," and the flashy "Orion," which looks like something out of one of the latest SF films. Estes is also offering a highly detailed *scale* model of the Phoenix, the USAF's air-to-air missile. A new launch controller, using advanced battery technology, is also among Estes' new product line.

Centuri is also offering a new launch controller, similar to that being offered by Estes.

Leading the 1982 Centuri line is a "Sam 3" missile, a semi-scale surface-to-air missile with a two-stage configuration. The first stage is D-powered, and the second stage can be powered by A, B, or C engines. The missile is modeled after Russian SAM's and should be quite a performer in the altitude department.

On the home front, Centuri is producing a scale model of the "Bulldog," a U.S. Marine Corps missile. The Bulldog is beautifully detailed, and sports a camouflage paint pattern. ■

The next issue will carry the announcement of the winning entries in the Model Rocketry Photo Contest (along with some of the winning photos!) We'll also be discussing model rocket clubs and related activities, and more programs for computers *and* programmable calculators.

That's it for now. Fly 'em high!

ADDRESSES

The list following includes all organizations and companies mentioned in this column, and is provided for your convenience:

A & A ENGINEERING
P.O. Box 6824
Buena Park, CA 90620

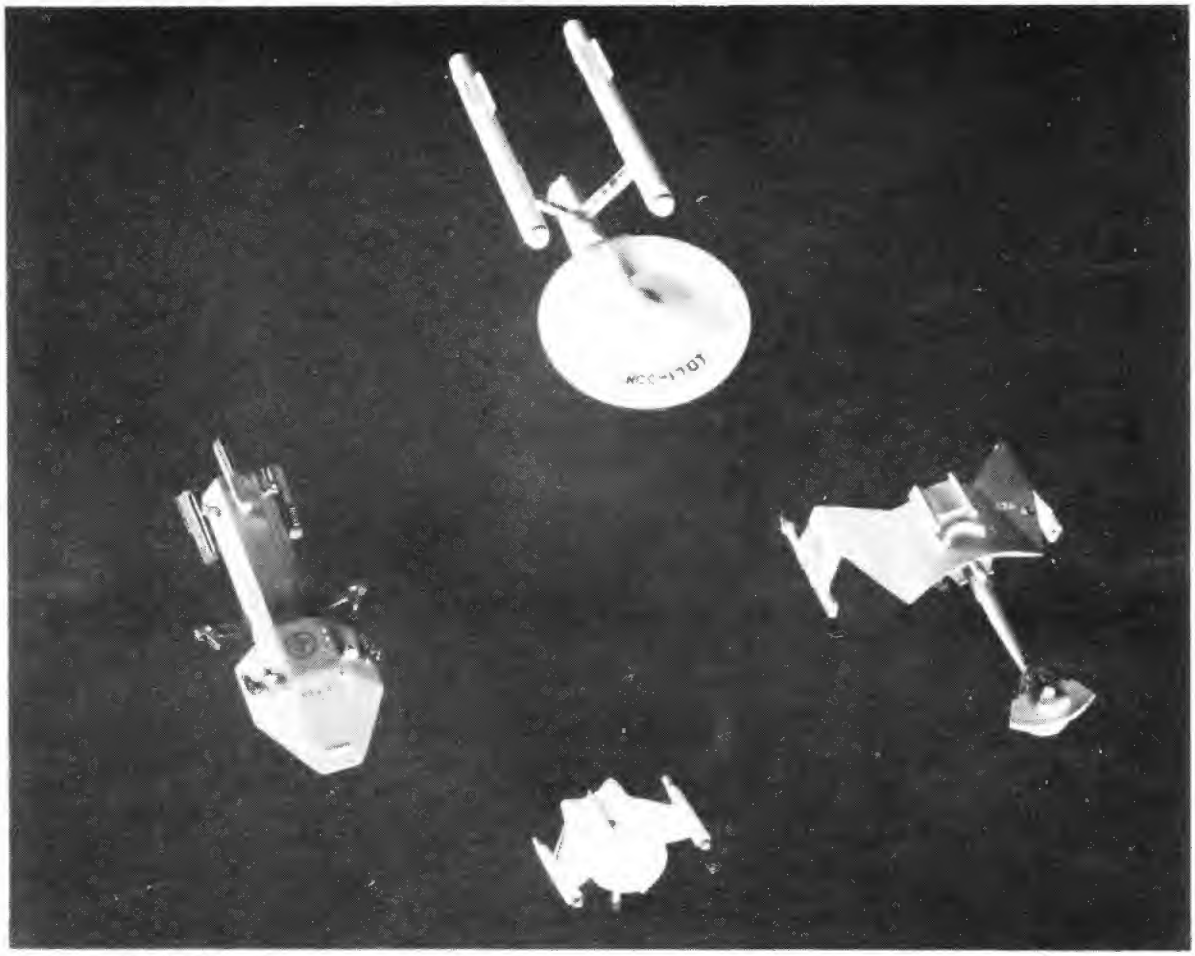
CENTURI ENGINEERING CO., INC.
Box 1988, Dept. M
Phoenix, AZ 85001

ESTES INDUSTRIES, INC.
Dept. B
Penrose, CO 81240

INSTANT SOFTWARE
Peterborough, NH 03458

REACTION TECHNOLOGY, INC.
P.O. Box 27224
Cincinnati, OH 45227

STAR FLEET BATTLES
MINIATURES
NEW FROM TASK FORCE GAMES



TASK FORCE GAMES, the company that brought space combat to life with STAR FLEET BATTLES, adds a new dimension of realism to your conflicts with this beautifully detailed line of miniatures — including ships from every major race in the game! The initial release of ships will include:

FEDERATION: Cruiser, Light Cruiser, Dreadnought, Tug
KLINGON: D7 Cruiser, F5 Frigate
ROMULAN: Warbird
KZINTI: CV Assault Shuttle Carrier, Escort Carrier, Frigate
HYDRAN: Ranger
GORN: Heavy Cruiser
ORION: Raider

And there are more ships yet to come.

AND, TASK FORCE GAMES will be supplying Miniatures Rules for STAR FLEET BATTLES directly to gamers — FREE OF CHARGE!

STAR FLEET BATTLES MINIATURES
Such realism has never been known before.

Available soon in fine hobby and game stores.
Only from

TASK FORCE GAMES
The NEW FORCE in Gaming.

THE BEAST BUST

By WILLY WHITTEN

This project began in a two-fold manner; I had drawn a small sketch of a beast head on a file card. I really liked the exaggerated expression of the mouth and felt I had an exciting subject. At the same time, I had discovered some new materials while at the studio working on some sculpture for a film. We were using blocks of urethane foam, carving them into the approximate shape and then laying on pastalina for the final modeling. I wanted to try the method, substituting sculpey in place of the oil base clay.

To begin, I poured equal amounts of parts A & B liquid urethane into an extra large paper cup. (Note: DO NOT breath the catalytic vapors of this stuff! It lets off cyanide gas! Yup, just like in the gas chamber.)

After it had foamed and set, I peeled away the paper cup. If you want to pour the foam into a box or some other container to get a basic form, you should spray the container beforehand with mold release.

Next, I carved the foam into the desired shape with a small rasp and dragon skin, rounding the top to act as a skull and carving out from the palate for the mouth area. I then covered the foam block with a thin layer of sculpey.

At this stage I set up my camera and floodlights and arranged the tools, materials and basic head form for my first photo of this journal. I took photos at intermittent times as I constructed the model. I will now refer to them and try to explain what took place between each shot.

While making this model, I discovered Sculpey III. This is colored sculpey! It comes in blue, yellow, red, brown, black, green and purple. One of the first things to come to mind, while playing with it and blending it was the marbling effects easily achieved. The result of this discovery is the marble stand for the bust. I later modeled the tongue out of a blend of red, brown and white, with just a touch of blue.

The head of the beast was painted with acrylic washes, after which the teeth and tongue were glued in with white glue. I glazed the inside of the mouth with acrylic gloss medium.

PHOTO #1

Basic carved urethane form, skull portion has thin layer of sculpey, with tools, alligator eyes and box of sculpey.

PHOTO #2

The eyes set in and held in place with lids made of strips of sculpey. These are glass alligator eyes with posts (wire that sticks from the back of the eye). They can be ordered from Jonas Bros. Taxidermy Supply in Denver, Co.

PHOTO #3

The upper brow has been added on one side, the basic form modeled in the jaw and neck areas. Note that if a portion is going to be the final shape on the model, it must be textured before the baking stage. I baked the model in each one of the stages shown in these photos.

PHOTO #4

Both brow ridges have now been modeled, and a ridge has been added on the top of the head. A roll of clay is set in front of propped model to represent where the chin will go and to measure distance to upper mouth.

PHOTO #5

A loop of aluminum armature wire is set in place as bracing for lower jaw.

PHOTO #6

I have, at this point, sculpted the teeth and baked them to hardness. Next I have added soft clay to the gum area and pushed the teeth in to create actual sockets. The lower teeth are also made, but the lower jaw is still in the armature stage. The tools in this shot are, from Left to Right: A) Tweezers, to set the teeth with; B) An X-Acto knife used for "adzing" (Scraping with the side of the blade.) the teeth smooth; C) A pointed tool for gum sculpture; D) Rounded-point tool, for gums; E) Razor blade; F) Small brush for blending out tool marks on gums (dipped in alcohol to cut the clay's surface); G) Jeweler's file; H & I) More brushes for blending; J) Tooth brush for skin texture (see inset).

PHOTO #7

Lower gums added—test fit for all of the teeth. The head is then cooked *without* the teeth. They will be added after the gums and inside of the mouth have been painted. This is much easier. . . . You would not believe how hard it is to paint around the teeth in an enclosed area—tight.

PHOTO #8

This photo shows the tooth sockets and the teeth, which I kept in L and R marked containers (originally used for contact lenses).

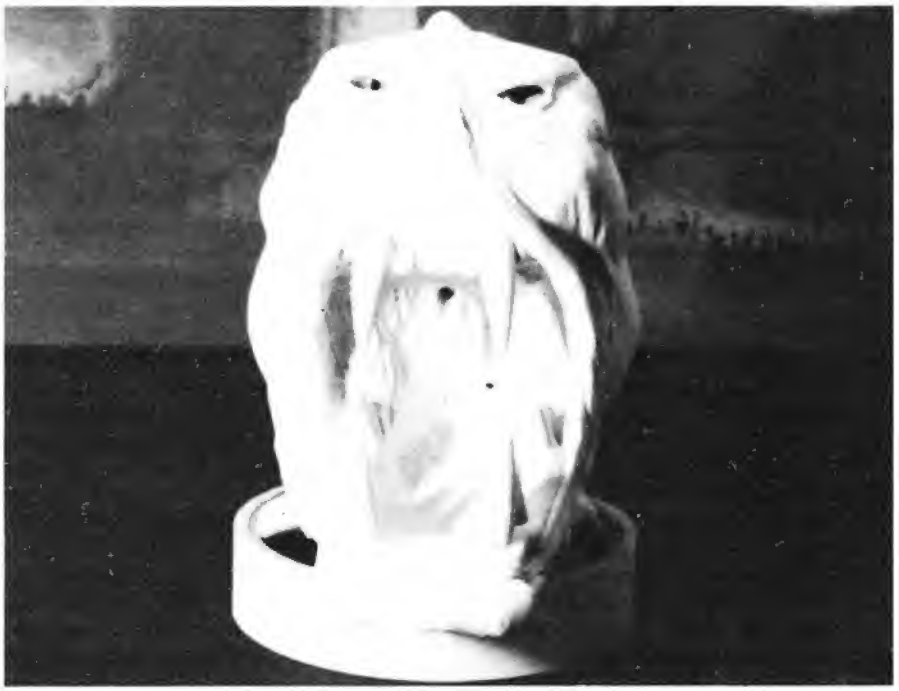


PHOTO #9

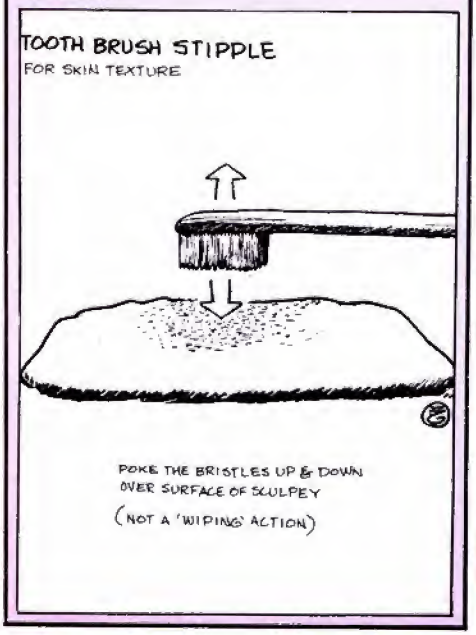
The head is now pretty much complete as far as the sculpture is concerned. It is now mounted on a short cylinder, mounted on a block of plywood. Next, I sculpted the thick folds of the neck, which blend into the cylinder which is covered with a thin layer of clay.

SKIN TEXTURE ON BEAST BUST

Generally speaking, I do not like to use "Texture Pads" (A texture pad is a small portion of a female mold, usually made of rubber or wax.) It is "Stamped" into a sculpture to create a texture. They can be cast from real objects such as snake skin, for scales; or a small area can be sculpted and cast. Latex painted onto orange peel can sometimes make a fairly adequate skin texture.) My biggest argument against them is that they do not normally follow the form of the sculpture correctly. If there is to be any subtlety to a skin texture; the pores, wrinkles and cell structure must flow with the contours of the piece. . . . The only way to do this, in my experience, is to take the time to apply the texture by hand; either tooled, or another technique which I will now discuss. This is the way I did the skin on the Beast Bust.

When the form of the sculpture was complete, I washed the uncooked sculpey with Isopropyl Alcohol, with a large soft brush, swabbing it until the surface of the clay becomes tacky. Next I stippled the prepared area with a toothbrush, pushing quite hard, creating a very rough, "dug up" texture. Let this set completely, until the clay has firmed to its original state. Now, back to the soft brush. Dip it in alcohol and brush out the excess on a cloth and then lightly brush the prepared surface, being careful to follow the contours—brush in only one direction at a time putting very little weight on the brush. On a minute level, what we are doing here is rounding off the tiny peaks of craters caused by the toothbrush stipple.

With a little practice, a great variety of skin effects can be created in this manner.



HORSES

Fantasy Models Of A Different Color

By JANICE A. MEIXNER

I currently own a stable of approximately 200 horses, of all breeds, colors and sizes, the entire herd stabled in a single room! They are of course *model* horses and it seems that, even though model horse showing has been active for about 15 years, no one outside of this hobby has ever heard of such a thing. What has this got to do with *fantasy* modeling? First let me explain exactly what the little-known world of model horses is about. Model Horse Showing is basically getting a model horse photographed and "showing" him via his photos through the mail. (Most shows are done in this manner, but there are "live" shows, in the west and northeast, where the actual models are taken and entered.)

My purpose here is to give you an idea of how they can be used in fantasy and adventure type modeling. Actually, use in military and adventure sets is fairly obvious, but they can liven up an otherwise fair diorama as well as add a touch of excitement to even an excellent set. What you may not realize at first glance is that not only can the plastic makes be re-done to fit your exact position and color specifications, but unicorns and winged horses can also be created quite easily, for fantasy/SF settings. You say your figures are very small or large size?—Currently made model horses range in size from under 1 inch to 14 inches in height (though I have seen some cement models up to a couple feet high). I believe horse modelers and fantasy modelers can both benefit by exchange of information, from expanded and imaginative use of horses in dioramas to adapting modeling techniques for human/alien figures for doing horses.

The models themselves can be any kind—plastic, metal, china. Any horse that is fairly realistic-looking can be shown. Emphasis is on realism on everything from the model to the tack, obstacles, and other animals required. The most common and popular models include two different types of plastic horses made here in the U.S., one (Hartland) a harder plastic and now discontinued, the other (Breyer) a softer kind and currently available. Other very popular types of models are

A barbaric ten inch Breyer.

A six inch Breyer with Phoenix figurine.

PHOTOS JANICE A. MEIXNER

A remodeled six inch Breyer.

Two five inch china unicorns.

beautiful china horses from both the U.S. (Hagen-Renaker) and England (Beswick), although the English makes have become more scarce recently. Most discontinued and "test" models are more valuable and have become excellent investments, an added bonus to their owners. For this reason, some people are mainly collectors, while others are interested specifically in showing or remaking/repainting the models ("R/R" in model horse lingo). However most, like myself, are a combination. This situation is very similar to ones I've heard from many collectors of space ships, robots, and other SF models.

Most model horses come in three general size ranges: 2½-3 inches, 6 inches and 9-10 inches. They are also available in a wide range of positions, from rearing to running or standing. If you happen to find one the correct size, position and color, there is little else to do as they look fairly realistic in original finish ("OF" to model horse showers). I usually touch up the eyes, however, for further realism.

If you find the right size but not quite the exact position, the model can be remade and repainted. It's always best to start with one as close to the final position you want as possible. Simple remaking, such as adjusting the position of the legs, moving or lowering the head, or removing the mane and tail, can be done with little work. Though various methods are used, the most common is holding the model in a pot of boiling water, using pot holders and being very careful. One part at a time is held in the hot water for a few moments, (the thicker the part, the longer it takes, of course), then removing the model from the water and moving the part to desired position. It usually takes at least two to three dunkings to get it exact, and it's a good idea to stand the model on a counter or table to make sure he stands well, if you are moving the legs or feet. One word of caution—most model horses have a small hole somewhere in the mold and you should locate it prior to heating (plastic models usually have it in the nostril or muzzle), because, while holding the horse in the boiling water, some of the hot water will seep into the hollow body of the model and can stream out when the model is tipped even slightly, and can burn you.

Drastic remaking, anything other than slight movement, is usually only done by more experienced R/R artists, or after a *lot* of experimenting (and probably several warped models) on the part of a beginner. However, even a few slight, almost unnoticeable changes can totally alter the overall appearance or position.

A fine hacksaw, a metal file and some sandpaper are used for removing the mane and tail ("m/t"). Generally in remade models, a hair m/t are added. You can either entirely remove the original m/t, leaving a smooth neck, and stump for the tail, or you can leave part or all of the original on and apply hair over it. Sometimes in this remaking you will end up with depressions or even holes that need to be filled over. In drastic remaking, slices or wedges are cut in the legs or neck so the part may be moved easier, and these also need filling in. I find that the self-hardening clay, found in most art/hobby stores, is good to use, although again a wide range of materials is put into use by the different R/R creators. The clay should be moistened slightly for better workability and applied with the surface blended onto the model. It usually dries in a few hours, or overnight, but I check it every once in a while because, if the area is good sized, (over an inch) it usually develops a few cracks and sometimes needs moistening and reblending.

When dry, if there are any cracks present they can easily be filled in with glue or even paint. I find it's a good idea to seal the edges of the added-on part with glue. If you have completely or partially removed the tail, the same clay can be used to mold a base structure to which the hair is applied for the tail, remembering that the hair will be longer than the "skelton" tail and so the base should be about 1-2 inches shorter than the finished tail wanted (depending also on the type and length

An Arabian horse amid a fantasy background. Horses add new dimensions to fantasy scenes.

Continued on page 50

RAIDERS OF THE LOST SPACE ARK

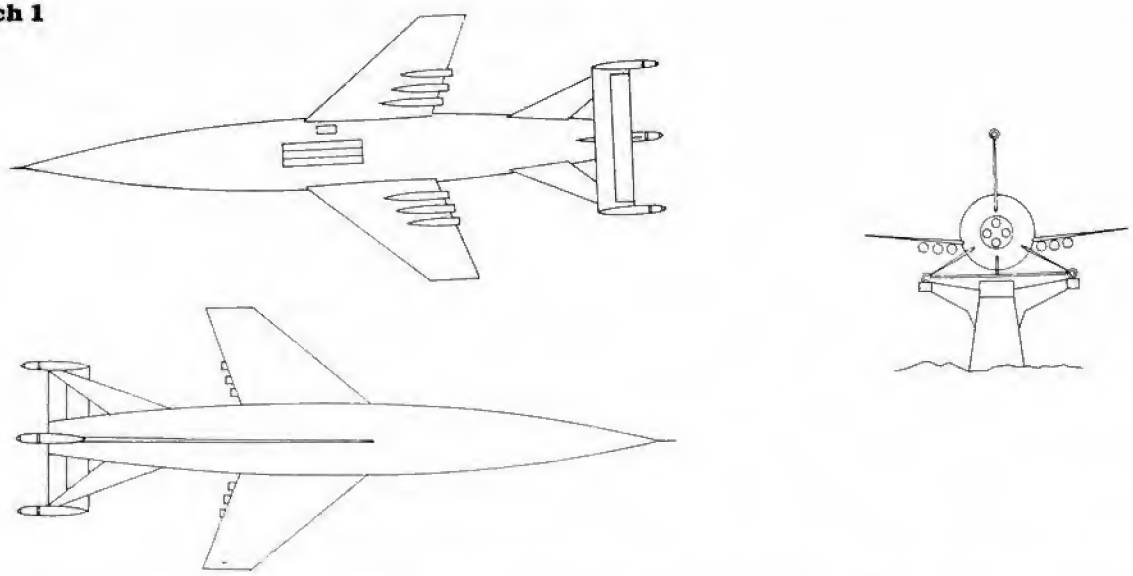
By DAVID DOUGLASS MERRIMAN III

Have you ever promised yourself to build a miniature from a movie or TV show? Sure. We all have. This article covers my realization of a promise I made myself 25 years ago after viewing a late night showing of George Pal's *When Worlds Collide*. Maybe, as you read this account of my project, you will relate it to a pet project you have been putting off for one reason or another.

The movie was released in 1951 and was based on the book written by Philip Wylie and Edwin Balmer. First released as a serialization that appeared in Bluebook magazine in 1932. The novel was published in its entirety a year later.

For you romantics out there (ok, me too) some of the artifacts uncovered during my research.

Sketch 1



The success of *When Worlds Collide*, and the lesser known sequel *After Worlds Collide*, was a surprise for its authors. Their work was admittedly pulp fiction, but the scope of the story coupled with powerful characterizations elevated the works above other fiction.

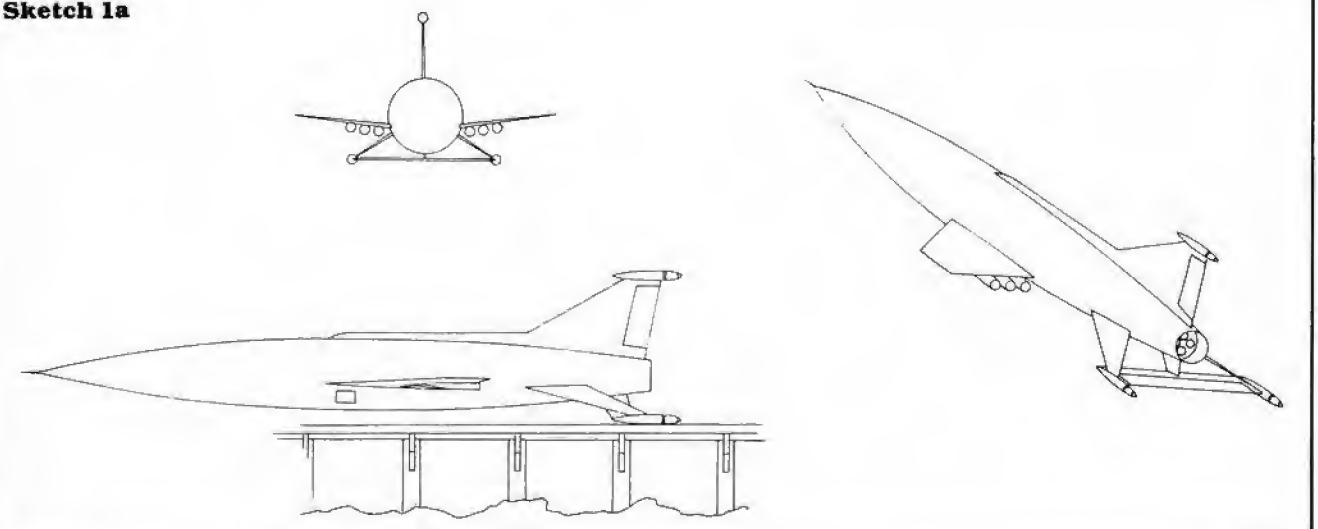
When Worlds Collide did not escape the movie industries attention; Paramount purchased the filming rights from the authors as early as 1934. Paramount announced that *WWC* was in pre-production and that Ciecil B. DeMille would direct. Imagine the treatment this master of the epic would have given the story. Unfortunately, the production was cancelled when DeMille lost interest and instead directed *Cleopatra*. Paramount put *WWC* on a back burner and it remained on the slate for 17 more years.

Eventually Paramount sold their rights of *WWC* to George Pal who, having just completed *Destination Moon*, was up and coming as the master of SF films. He saw *WWC* as the perfect choice for this next production. *WWC* contained the elements Pal had seen work before: human adventure mixed with high technology. *WWC* now had a solid potential for success as a movie with Pal in charge. Paramount, realizing this, quickly offered to buy back the property, with the provision that Pal helm the production and assume artistic control. The studio would put up the money for the picture and stay out of Pal's way, well . . . almost.

WWC was again a hot item for Paramount; with Pal producing. The studio did prevail on a few points; the love interest expanded way in excess of what Pal wanted. He put up with this and some other meddling and pushed on with the work. Production number 11471 was assigned and the movie was officially underway.

The job of writing the screen-play was given to Sydney Boehm. Though retaining much of the novel's characters and plot, Mr. Boehm brought the technology of space flight up to date; the accepted engineering principles of 1950. There were major technical changes from the novel. The novel's plot relied on nuclear propulsion and the existence of an exotic metal, but Boehm chose to heighten the drama of the movie by offering the space travelers only the state of the art in rocket propulsion of current times: chemical rocket engines. With this and other changes, Boehm succeeded in giving the story a believable technology. The climatic element was fuel; would there be enough to reach the new world, Zyra? A situation easier to accept than the book's plot, waiting for God to

Sketch 1a



deliver a much needed super metal from which to build the engines of the Ark. Boehm made a good story better.

Chesley Bonestell, a noted astronomical artist, was hired as matt painter and technical consultant. He prepared designs for the Ark that were later adapted for miniature construction by Art Director's Hal Hereia and Al Nozaki. The huge spaceship, that was to become central to the stories climactic ending, took form: the Ark of space.

Mr. Bonestell decided that the Ark, sitting on its belly, would be launched from a mile long track using a rocket propelled undercarriage that supported the Ark and provided additional thrust during the take-off roll. A system not unlike what the Germans used to launch their V-1 cruise missiles.

To achieve the spectacle of the massive Ark and its attendant launching track and building yards, Gorden Jennings was put in charge of the special effects department. Jennings and his team of model buildings, took the Art Department plans and translated them into the hardware required for the production.

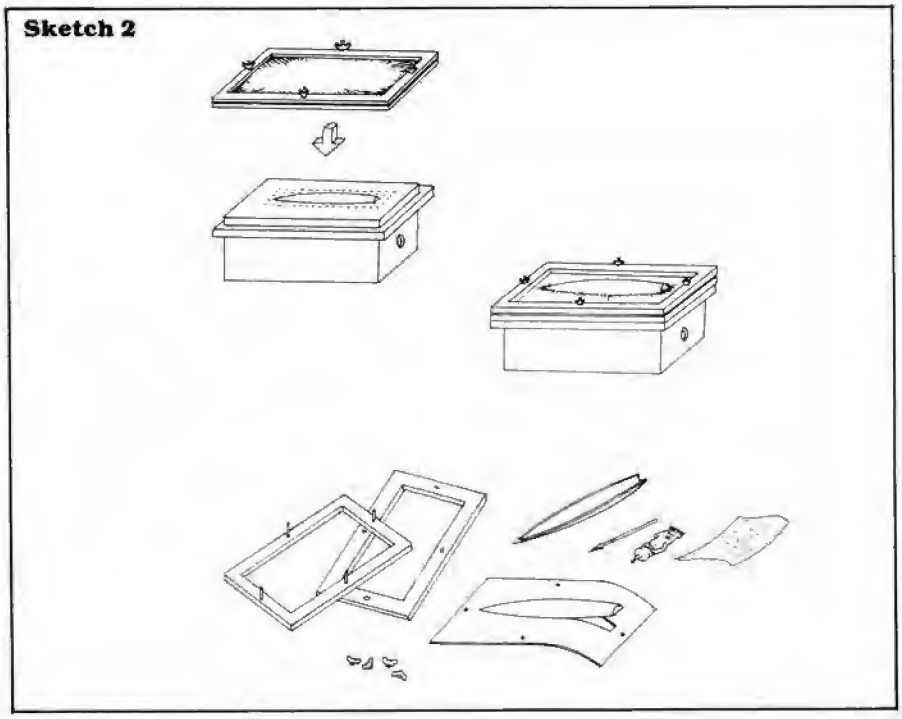
Two models of the Ark were built: one with sections of the hull's skin open to reveal inner workings of the ship. The other Ark miniature was built fully constructed. It also contained the mechanisms that produced the long jets of flame that issued from the engines; giving the appearance of powered flight.

The partially constructed Ark miniature survives today, though in a state of disrepair. Still a Paramount property.

The miniature Arks and the yard facilities were excellent examples of the Paramount modelers craftsmanship. The Miniatures hull, wings and other structures were constructed of rolled and turned metal. Since the completed Ark miniature featured actual fire producing devices for its engines, wood or plastic would have been unsuitable.

The flame effects are achieved by tuffs of cotton, colored with various lacquers, glued around wires and fitted into each nozzel.

Sketch 2



Sadly, metal work is not practiced with any regularity by today's effects builders. Almost all spacecraft miniatures are now made of wood and plastic sheet. Pushing the craft back to the point where we see some of todays effects people lapsing into that lowest form of model building—kitbashing: bits and pieces lifted from plastic model kits thrown together in a random pattern. Quality and high standards are sometimes sacrificed. When this happens the result is another "junk yard spaceship."

OK, I'm stepping off my soapbox to finish this article.

I chose to build a full diorama showing the Ark racing up the last ¼ mile of the launching track. This would require a small section of the mountain top, the track, the rocket propelled undercarriage and the Ark.

Before any work could start on the diorama I had to get together all the information I had on the subject. My files and books were gathered up and all information that related to the Ark was copied.

The majority of that information was found in old issues of *Spaceman* and the various *Starlog Magazines*. I should also credit the excellent photos and 35mm slides supplied by Still Things, those helping with the detail work. Rounding out my search for information, but arriving too late to help with the diorama was the location of a copy of the actual studio Art Department plans of the Ark. A real find.

THE ARK

I appreciate that some of you may not have acquired a few of the model building techniques I have over the years, so I present three methods of construction. Hopefully, anyone wishing to build a model of the Ark will be able to achieve it using one or a combination of the techniques presented here. Regardless of the method used, keep in mind that the completed model is simply a form with a coat of paint over it. The key to an attractive model is the finish. Built of plastic, wood, metal, clay, horse shit or whatever; as long as the medium is correctly formed and reacts favorably with the paint used. The building material is unimportant; the finish is.

Briefly, the three methods of construction are: Vacuforming, Wood Turning and Wood Block Carving. A ruff outline of each method is presented. The finishing process is common to all and is given later.

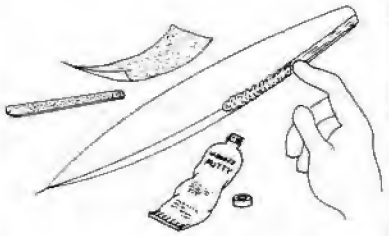
VACUFORMING

The final result of this method are thin walled plastic parts that make up the model; we make a plastic kit. The vacuformed parts are assembled much like the off the shelf plastic model kit one buys at the local hobby shop.

First, wooden patterns of each model part are cut to shape. These patterns are then mounted on the vacuum box. .030 inch polystyrene sheet plastic is secured to a frame and heated. The plastic is then draped over the pattern and the air from between the plastic and the pattern is removed with a household vacuum cleaner. The resulting higher pressure on top of the plastic forces it to conform to the shape

Sketch 2a

Sketch 3



of the pattern. After cooling, the plastic casting fixes to that shape and is removed from the pattern. The cast part is then trimmed from the surrounding plastic sheet and assembled to the other model parts.

SCETCH #1

The beauty of this method is that as many model parts as you want can be made quickly and with absolute uniformity each time. A big aid if you want to build more models of the same subject. Also, repetitious items like the wing engines and stabilizer bullets are made from just one set of patterns.

Since the assembled vacuformed parts are relatively weak, I recommend that you foam fill the assembled hull. The wing engines, bullets and other appendages are small enough to retain enough strength to resist normal handling and don't need the support of a foam core. A two part foam mix is prepared and poured into the nozzle end of the hull and allowed to expand and cure. The excess foam that spills out the nozzle is trimmed flush with a knife.

SCETCH #2 AND #2A

Super glue is used for component assembly.

The various glue seams are filled with "green stuff" putty and sanded. The assembled model is then sanded smooth with descending grades of "wet & dry" sand paper until an unblemished finish is achieved. The scribing of the rudder, air lock and landing gear doors is accomplished by etching the hull with a scratch awl tracing along a suitably cut template.

WOOD TURNING

If you choose not to vacuform the Ark parts then the hull and appendages can be made of wood. Since the hull is a spindle it is best made on a wood turning lathe. Of course, one must have access to the tool and be well versed in its safe operation. If you don't have one at home I would suggest the local YMCA or school wood working shop for instruction and use of the tool.

SCETCH #3

The rudder and stabilizer "bullets" can also be turned. The appendages are cut from 3/32 inch sheet wood and carved to air foil cross section. All appendages that butt-join at the hull are pined with 1/16 inch dowels to provide strength. All glue joints are made with "5-minute epoxy" glue. As in the vacuformed method, putty is applied to all joints and sanded smooth.

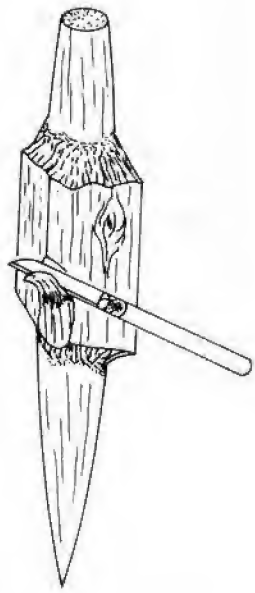
The grain of the wood is filled with a sanding sealer made up from a mixture of talcum powder and "K&B epoxy paint." This mess is brushed on the model, left to dry over night, and sanded smooth the next day. The primming is repeated until all wood grain is filled and the finish unblemished.

WOOD BLOCK CARVING

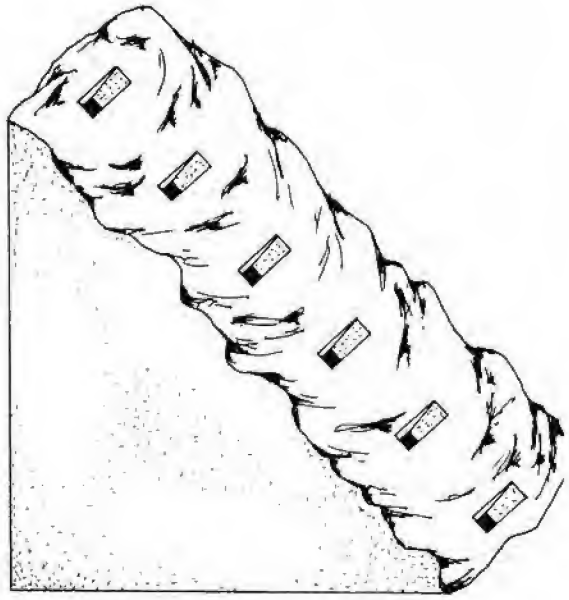
If the lathe just isn't available, we can get right down to basics and carve the hull out of wood (or a block of foam if you like). Only tools required are a sharp knife and templates. The templates are guides used to insure that the correct diameter is kept at specific stations along the length of the hull during carving. I know guy's who can carve out a hull the first time, so

Sketch 4

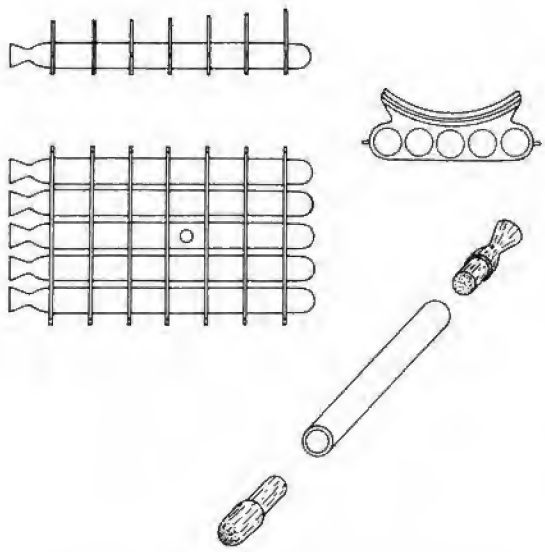
Sketch 5



Sketch 6



Sketch 7



take heart, it's not as hard as you may think.

SCETCH #4

Once the hull is shaped to your satisfaction, the model is completed as in the WOOD TURNING section.

THE FINISH

The Ark is silver and presents us with the problem of representing a metalic look to an unmetalic material. If your Ark is made of wood you would already have filled the grain as previously described. If your model is plastic, it must be prepared by sanding the plastic to an almost glossy luster. When ready, paint the thing with a first coat of silver. After that coat dries, you will quickly find some faults like scratches and pits that you missed before. No getting around it, you'll have to sand the model down in the affected area with fine sand paper and paint again. Repeat this frustrating process until the model looks presentable.

Now you can call it quits if you like and stick the model on a display stand.

If you want to go that one step further and build the launching track and mountain the following details are provided:

THE MOUNTAIN

This is simply a block of foam that is carved in the shape of a right triangle with the surface pitted and cut to assume the look of rocky terrain. Six slots are cut into its face to later accept the launching track columns.

SCETCH #5

A wooden base is purchased to mount the diorama and finished with a gloss varnish to suit.

UNDERCARRIAGE

"Rocket propelled undercarriage" is, to us, its full functional title. This is the device that cradled the Ark upon the track and also provided additional rocket thrust during the take-off. Consisting of five huge Rocket Assisted Take Off (RATO) motors secured together in a six frame cage that also housed the trucks that rode in the rails of the central track.

The undercarriage is the smallest assembly of the Ark diorama, but will require the most effort to make.

SCETCH #6

The RATO motors are made from five lengths of aluminum tubing. Each capped with a wooden hemisphere and rocket nozzle. These items are turned dowels that are machined in the chuck of a ¼ inch drill motor. A more practical approach (one not available to me at the time) would be to make just one complete RATO unit, make a rubber mold of it and cast epoxy or polyester resin motors.

The center RATO motor is drilled with a 3/32 inch transverse hole to accept the mounting pin that secures the Ark and undercarriage to the track. The frame is painted a dark red and the motors are painted silver. After all paint has dried, insert the motors into the frame and secure with super glue.

TRACK

All components here are made of .030 inch plastic sheet. The three tracks are box in cross-section. The support columns are built up as illustrated. All seams are puttied and sanded smooth.

At this point the columns are glued into the mountain with epoxy and the tracks secured to the columns with plastic glue.

The tracks and columns are painted a cement color. The structure is then weathered with carbon pencils and spray gun followed by a white wash on the under surfaces. Don't over do the weathering; the track was erected no more than year before the launching of the Ark.

With the track painted and weathered the mountain surface is dressed up with foliage. The bare sides of the mountain are covered with sections of dark colored posterboard. Your diorama is done and ready for display.

Keep in mind that the techniques offered here are just as valid for any other modeling project: how about the giant glider/spaceship from *Conquest Of Space* or the Martian war machine from *War Of The Worlds*? You can build anything! ■

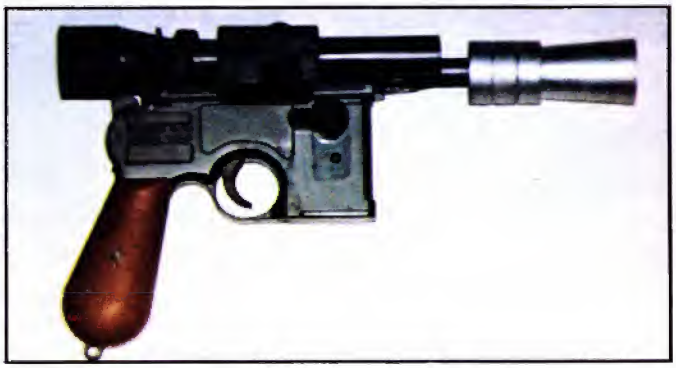
READERS' PHOTO PAGE

WILLIAM A. WATT
Bethlehem, Pennsylvania

I've been building fantasy dioramas (all in 25mm) for about 3 years now and photographing them for about 2 years. Some are staged and others are complete dioramas. My insatiable interest in monster and fantasy movies prompted me to start photographing these figures in scenes that look like they could have been from a movie. The use of a backdrop greatly enhances the credibility of the figures.

JOHN L. FLYNN
Glen Burnie, Maryland

I've been building models since I was eight, and scratch-building since the model companies refused to put out quality kits (like the Galactica). I've won several awards at art shows (locally), and since my wife works for museums, I've been displayed at them. I own two fantasy shops in the Baltimore area (where I sell books, comics, models and FANTASY MODELING) and quite often my customers will come in and catch me with models and parts all over the counter.



MILITARY MINIATURE SOCIETY OF ILLINOIS

By PHILIP O. STEARNS

The zenith of competitive modeling, the annual competitions of the Military Miniature Society of Illinois burst upon us once more in November of '81 and to the fantasy modelers it was a momentous advance in the number of entries in our field. Although the participation of master modelers was limited to our friend, Spencer van Gulick, who had two new boxed dioramas, there were many other participants whose fascination with the unusual created some very fascinating entries. Our cover features the work of Dr. Ernest Nora, who was featured last year with his scratch built "Star Wars" pieces, and this time presents us with "War," a splendid fantasy warrior of about 100mm and scratchbuilt from a combination of various space heroes. The piece was one of the medal winners. Aside from his boxes, Spencer van Gulick very cleverly combined a Hearne Plunderer and a Phoenix modified tiger into an outstanding vignette. Larry Munee used a Ron Hinote Venusian camel combined with Historex and Airfix Figures for his Space Marines vignette. Al Ceh produced a highly effective vignette, "Space Invasion," with a combination of highly reworked figures. Bill Merklin sculpted his own version of a "Butterfly Nude" with real butterfly wings while John Redmont created a very impressive "Ringworld Flycycle" in the scratchbuilt space vehicle class. Fred Drehbol built a "Wizard's Workshop" using a combination of Phoenix, Broadsword and assorted goodies which was also very effective. A most outstanding minidiorama called "First Contact" was made by Don Will using a varied assortment of 54mm figures. He also included another prehistoric scene with dragon-like beasts and rich exotic vegetation. Tony Bialas did a very creditable job on a Superior stock figure of "Torc." Tom Brookwalter did a very interesting conversion of a Historex Horse into a beautiful "Unicorn."

Although these entries represented only a small portion of the overall entries in the competition, the quality was of the highest standard exemplified by the Reverend van Gulick winning the Chicago Medal symbolic of admittance into the ranks of Grand Master. The creative thinking and projection into this aspect of modeling is ever on the increase and to your editors it is a source of great satisfaction to witness the care and devotion by some of the country's outstanding modelers to this somewhat maligned form of miniature modeling. To all of you everywhere I urge you most fervently to keep modeling and competing in the fantasy field. ■

PHOTOS: LANE STEWARD

Prehistoric World by Don Will

Ringworld by John Redmont

First Contact by Don Will

Unicorn by Tom Brookwalter

Torc by Tony Bialas

Butterfly Nude by Bill Merklien

Space Marines by Larry Munee

Wizards Workshop by Fred Drehbol

Space Invasion by Al Ceh

Plunderer by the Rev. Van Gulick

ODDS & ENDS

Deep Space Station

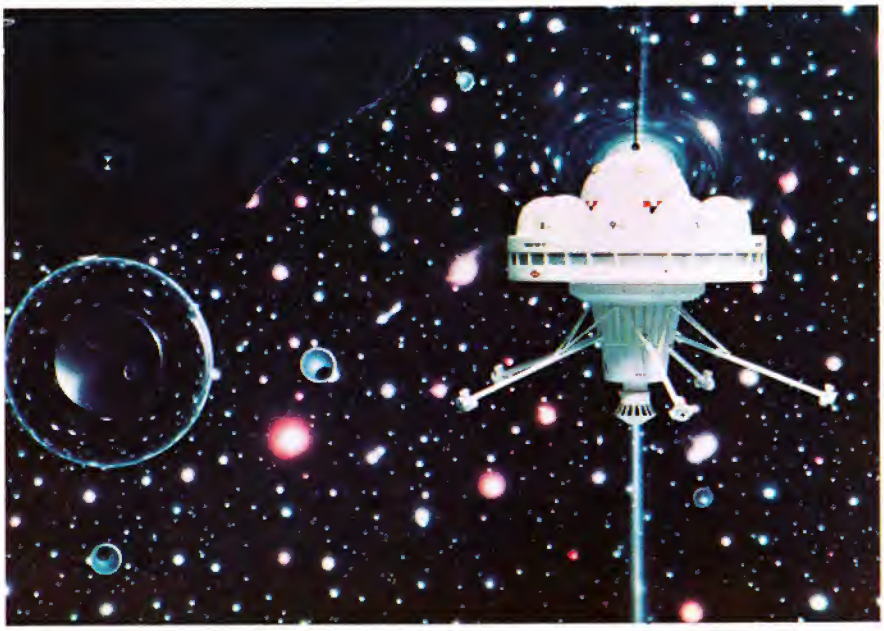
In the past few issues of FANTASY MODELING, I've given various hints and tips for detailing portions of spaceship exteriors and interiors. As a change of pace, here is an idea for an entire vehicle made up of odds and ends and some inexpensively purchased items.

The main hull is a 4½ inch-diameter clear plastic box, readily available at plastic supply stores. Two boxes are needed for this design. The cover from the second box is added to the bottom of the first to create a sandwich effect—cover/bottom/cover—which forms a recess in the middle. Thirty-two pieces of .040 inch-diameter styrene rod create the posts that fill the recess.

The domes on top of the ship are capsules used to hold small prizes dispensed from vending machines. There are nine small ones encircling the single large dome, which is detailed with some flat model car taillights.

The bottom half of the ship is a stack of parts consisting of a *UFO Candy* container, a medium size *Clorox* bleach bottle cap, and a *Joy* liquid detergent pour spout.

Plastic pick-up sticks are the arms extending from the *Clorox* cap, and they are braced with .040 inch rod. Detail on the end of the arms is made up of tank wheels (Aurora 1/48 Churchill) and 12mm three-sided beads that can be bought in most craft stores.



The beauty of this design is that little work is involved in the actual construction of the ship. The various rods have to be cut to length, holes need to be drilled to accept the rods, and the letters must be sanded off the *Clorox* cap. Otherwise, the various components are merely glued together as is! Final detailing is a matter of personal taste, and can incorporate scribed panel lines or additional bits and pieces.

Most of the markings on this model are from sheets of dry transfer lettering. Besides the obvious use in forming names, these sheets can also be used to create incidental markings and designs by arranging periods, dashes, and simple letters (I, V, T, O, etc.) in unorthodox combinations.

Although this circular spaceship is basically simple in design and construction, the numerical mismatch of the radiating components adds interest to the model. The name "Frontier III" appears equally spaced *three* times around the rim, there are *five* arms on the bottom, *nine* small domes on top, and *thirty-two* posts around the center. In a slow spin, the relationships between these parts is continually changing, and this induces a fascination that would probably be lacking in a more symmetrical model. If, for example, the ship had the name applied *four* times, *four* arms, *eight* small domes, and the *thirty-two* posts, the design would repeat itself after every 90 degrees of rotation. However, the design shown here takes a full 360 degrees of rotation for a complete view of the ship. This idea could be an extra plus for models intended for use in home movies.

COLLECTABLES

By PHILIP O. STEARNS

1

MONARCH MINIATURES INC., P.O. Box 4195, Long Island City, New York 11104.

Leaving no stone unturned here in America our old friend August Benkhart has sprung into the 25mm war game field with a series of weird armored vehicle and some very strange and delightful little creatures which should certainly delight the games fanciers. These are all created by that soft bearded giant, Stephen Tofano, who keeps re-emerging in all sorts of corners. We look forward to more of these amusing pieces in the not too distant future.

2

IMRIERISELY MINIATURES INC., P.O. Box 89, Burnt Hills, N.Y.

Continuing on in their Knights of the Round Table this firm introduces two foot figure and a mounted page blowing a trumpet with all the heraldry carefully designed on the trumpet banner and tabbard. These will fit well into the preceeding figures in this very pleasant series.

3

BARTON MINIATURES LTD., U.S. Distributor Corporal Tuna Supply Co. Inc., 855 Mayfair Road, Akron, Ohio 21224

This beautiful 90mm figure from this outstanding firm should be a joy to any who purchase it for again, although it is a true Hoplite presentation, it can so easily be adapted to heroic figures such as Tarl Cabott, Warrior of Gor or many others from similar tales. As with all Barton figures the human anatomy is superb and the sculpting leaves little to be desired.

4

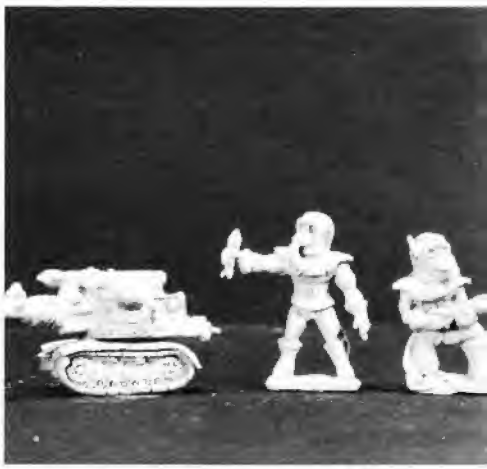
INVESTMENT ART COLLECTION, 49-57 High Street, Droitwich, Worcs, England.

These two British Civil War 120mm figures are by Ron Cameron and I have included them among our figures for they can equally serve piratical portrayals and they are beautifully animated and posed so as to work well with each other. We have come to know and respect Ron Cameron work at Tradition and Airfix as well and his workmanship is of the highest quality. These and the others in the line will make superb additions to any collection.

5

ARES MINIATURES, U.S. Distributor Skirmish Line Miniatures, Box 405M, 51 South Street, Room 100, Morristown, New Jersey 07960.

This Italian firm is providing a num-



COLLECTABLES

ber of packages of accessories which will prove invaluable to all vignette and diorama makers; they include many plates, sauecers, dishes, cups, tables, lamps, stands and last but by no means least a figure of a nude man and woman with assortments of heads and arms which can save a lot of time and trouble if your sculpting skills are at all weak. These are all in the 54mm vein and are all well recommended.

6

ART MINIATURE, 127, Route de Malnoue, 93160 Noisy-le Grand, France.

54mm military pieces of the company which has been one of the best manufacturers from France in recent years. They are one of the rare firms who cover any of the less known but very spectacular uniforms of the Ancient Regime.

7

PHOENIX MODEL DEVELOPMENTS, U.S. distributor Corporal Tuna Supply Co. Inc, 855 Mayfair Road, Akron, Ohio 21224.

Once again the magnificent artistry of Tim Richards has brought us a panoply of delicious goodies for our delectation with a magnificent 80mm mermaid perched on some rounded rocks and draped with seaweed, a splendid Pegasus flying horse with rider, and a series of delightful Victorian characters including a fish monger, a British Bobby, a Punch and Judy theater with operator and two astounded children and these, although not strictly fantasy, are so unusual as to be worth including in our review. All of these figures, as I must always say, represent quality of the highest, which instantly set the fingers tingling with desire to paint and dioramize them.

8

HEARNE ORIGINALS, U.S. distributor Corporal Tuna Supply Co. Inc., 855 Mayfair Road, Akron, Ohio 21224.

Sculptor Bill Hearne, an old friend, has seen fit to enter into the fascinating world of fantasy and has done so with much elan, starting first with a mounted barbarian on a rearing horse and a male and female barbarian which can work most easily in a diorama setting. The figures carry all the style of Frazzetta and Vallejo and should be a joy to assemble and paint.

9

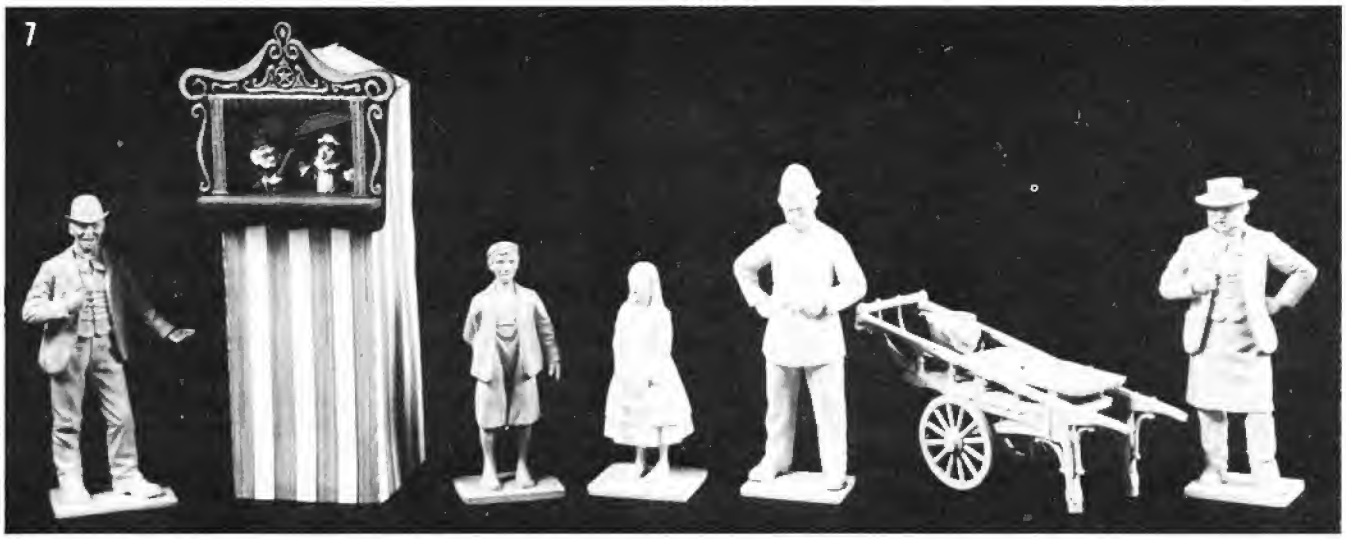
TRADITION, 5A Shepherd Street, Mayfair, London W-1, England.

This most prestigious of miniature makers has finally taken the plunge into the world of fantasy and with the efforts of Jeff Willis they present us with some special offerings of male and female warriors, wizards, creatures, demons, dwarfs and priests to tickle the fancy of even the most fastidious. These are all 54mm and will certainly compose the most varied cast of characters for use in role playing games and dioramas. Bravo, Tradition, you most conservative of model makers!

10

T-REX, INC., 3618 Dexter, Fort Worth, Texas 76107.

This company manufactures all this mini-futuristic equipment in designs especially in accordance with specifications set for the game of SPACE OPERA and they have such provoking names as the TERRAN UNION and the AZURICH IMPERIUM. Although very small indeed they represent superb quality in manufacture and detail. ■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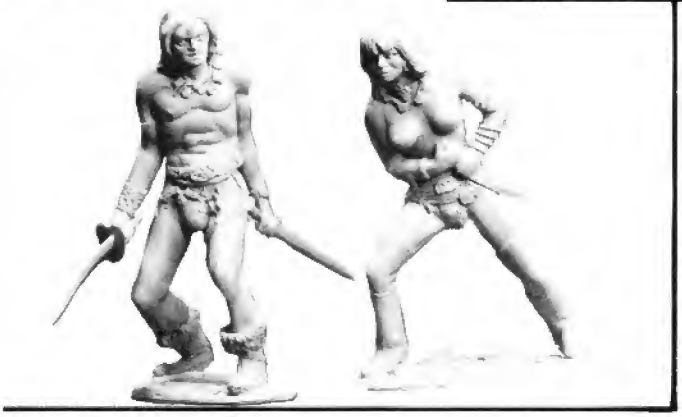


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Horses

Continued from page 37

of hair or fur used). Clay can also be used to heighten or reshape the tail slightly, although if a different position is required, such as moving from one side to the other or pulling back out from the body, this should be done when remaking in the hot water.

At this point, I take an Exacto knife or sandpaper, and remove all the molded ridges on the model, which usually run down fronts and backs of the legs, and underneath the neck. An area that generally needs extra attention and "cleaning" is around the fetlocks, just above and behind the hooves.

Naturally if you wanted a unicorn or winged horse model, you would do the horn or wings (or both) with the clay also. I think it would look better, more natural, to mold them onto the model before painting, rather than do them separately and glue on later. If you didn't want a hair m/t, they can be sculpted from the clay also. Seal and finish any clay parts with glue or other material. It can be fragile when dried.

Next, of course, comes the painting, and I have used oils, acrylics, spray paints and even water color. Generally though, tube acrylics are used because of the easy mixing of colors and fast drying time. I only use oils when I have plenty of time and want to do some extensive blending, but I always add a little cobalt siccative to the oil paint so the model will dry overnight, or at least in a couple days. Unlike human type figures, the model horses will not be wearing clothes or cloth (except perhaps for a saddle or costume drape), and so the entire body must be painted, and shaded if possible. Keep in mind that, unless you have the model glued, nailed or otherwise mounted on a base (required in remakes standing on two feet or an otherwise precarious position) you will have to hold the horse by one foot (or the tail if it's especially secure), to do the repainting, and they are heavier than human figures. Because of this, I paint the model, starting at the head down to the feet, painting all the feet except the one(s) I need to hold the model by, and then finish the last foot when the model is dry. (Since you don't want to completely re-mix an exact color, it's a good idea to have the feet black such as a bay horse, or with white socks.)

Most colors are easy to mix, but newcomers almost always have trouble with chestnuts, palominos, and buckskins. Unless you absolutely *have* to have a palomino or buckskin color horse, it's best to avoid those since, even when you finally get the correct shade you want, different lighting tends to completely change the color. I've seen many lovely golden palominos go inside for a live show and end up looking green or orange. A nice medium chestnut can be obtained easily by mixing red oxide with a touch of black, the more black added the darker and more brown the color. For a lighter chestnut or sorrel, add some raw sienna and yellow. If you want an appaloosa or pinto (always colorful and eye-catching) or an apple grey, it's best to look through some real horse magazines for good, natural looking patterns, and you can get some great *new* ideas from these as well for positions or colors. Looking through one of the model company's catalogs can help a lot, as well as give you an idea of what is available. (The several mail order companies that handle these plastic models are happy to send small catalogs with full color photos of every model currently made by the modeling company!?

In adding a hair mane and tail, usually craft fur, available at most art/hobby stores, is used and comes in a variety of colors. Cut the fur into strips about 1½-3 inches wide, then part off small segments and cut them from the backing material for application with glue to the model. Only cut as much as you think you will use—you can always cut another piece and already-cut fur is annoying to try to store away. Correct detailing of the eyes and shading of face and feet for realistic appearance can make an important difference in the finished model. One easy trick is to touch up the eyes with clear nail polish to bring them out more.

Of course, it would not be unusual to find a model that is already the correct size and position. Even if the model is not the color you need or want for your diorama, simple repainting can be done quickly and easily. For white, black, grey or brown color horses, I generally just use spray paints because they give a smooth, even finish and are the fastest and easiest. If tack (saddles, bridles, halters, harness) is required for your scenario, you have a choice of making it yourself or buying a set from a number of different tack makers. English style sets are generally quite reasonable, a few dollars, but good Western sets run about $10-25. If you're planning to do more than just one or two horses that require tack, you might want to learn how to make the tack yourself. Because costumes are always different from each other in styles, you will probably have to make this yourself if you need, say, an Arabian type costume.

All of this is just the "tip of the iceberg." The world of model horse showing is much deeper, extensive and detailed. I can already picture dioramas with unicorns, winged horses, and someday perhaps even handsome or fierce centaurs made from human and horse models combined! I have not been able to start a stable of unicorns and winged horses yet due to limited space, but hope to someday soon.

In the meantime, imagine *your* figure, perhaps a proud barbarian warrior/hero—wouldn't he look even better, more dramatic, sitting astride or holding the reins of a proud, prancing winged stallion? A princess could be even more royal-looking and beautiful standing in front or along side of her elegant, richly adorned white steed. And what lovely fantasy diorama would not be more "dreamy" and fantastic without a graceful unicorn in the background, perhaps on a hill top? I have seen some fantasy/SF dioramas with horses in them, but with the addition of the plastic models for remaking/repainting, the knowledge available from the model horse showers, the full extent of the possibilities for horses in fantasy modeling has not yet even begun to be realized. ■

Two putty winged pegasi.

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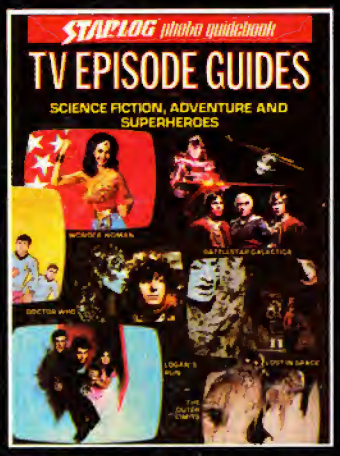

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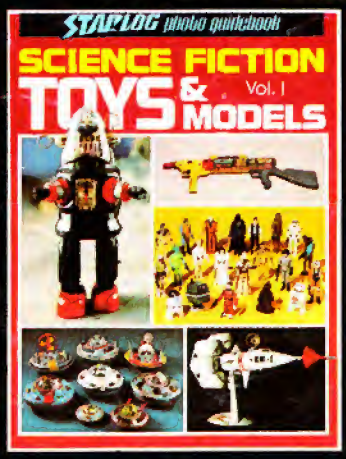

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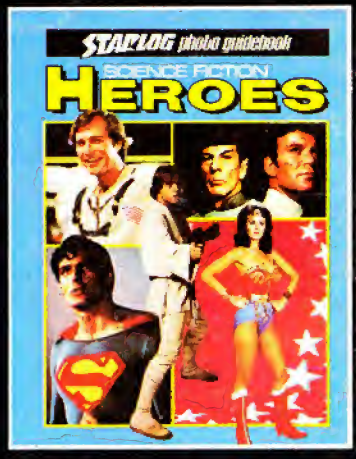

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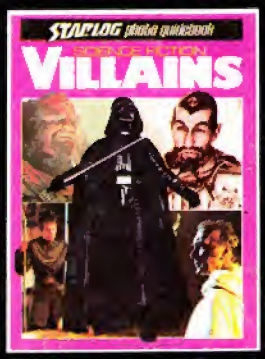

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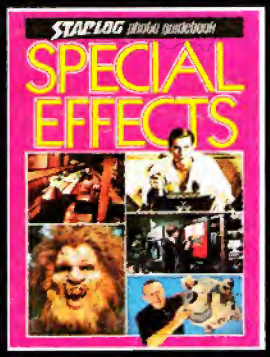

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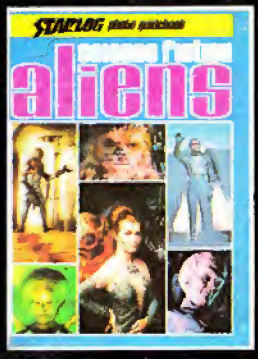

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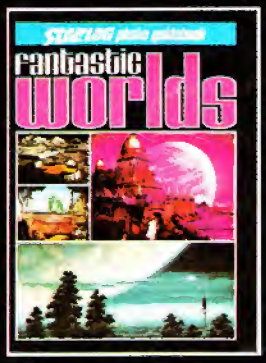

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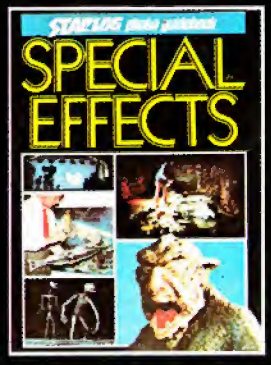

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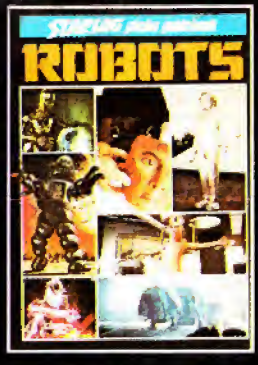

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